DATASTAR™

Training Guide

DataStar Training Guide

For DataStar Release 1.4

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★★★

References are made throughout this manual to the Control Program for Microprocessors, commonly known as CP/M. CP/M is a trademark of Digital Research of Pacific Grove, California.

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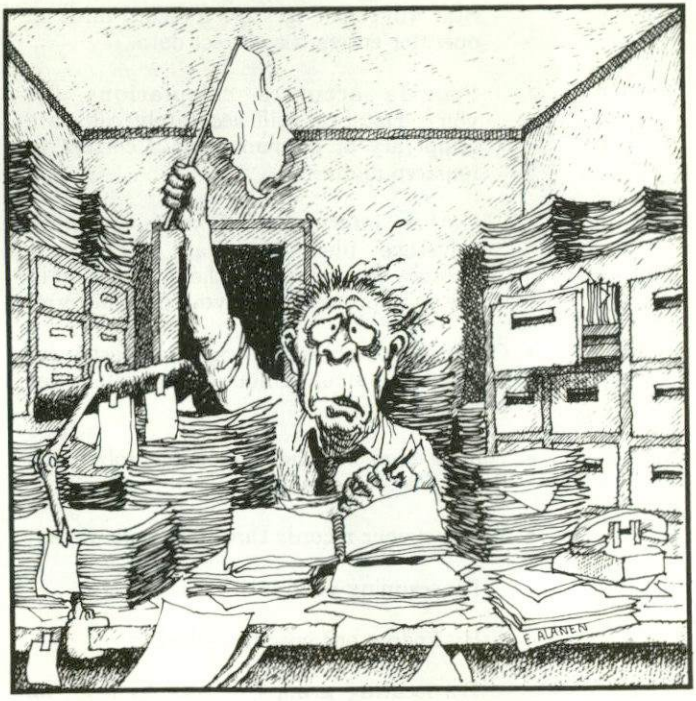
What Is DataStar?



DATASTAR is a comprehensive key-to-disk data entry, control, and retrieval program. One of **DataStar's** most outstanding features is its **FLEXIBILITY. This flexibility allows you to:**

- Design the input format (form) that suits your needs. Copy the forms you're using now; no need to change. Your form can be as small as one page or as large as three pages wide and several pages long.

- Specify how DataStar is to help you during the data entry process. You can assign field characteristics that tell DataStar to:

  Protect against incorrect entry — DataStar will refuse to store a record until an operator enters the correct data.

  Provide accurate calculations for you — DataStar will accurately calculate temporary or permanent data correct to fourteen digits.

  Gather information from a separate reference file — DataStar will access another file and supply the information in the appropriate field on your current form.

- Organize your files in a way that best suits you — by name, amount, or customer number.

- Handle high volume data entry jobs with Batch File processing.

- Retrieve your records three different ways.

  By scanning your entire file.

  By finding one specific record.

  By locating groups of records (e.g., all records from New York).

- Use DataStar as a data entry system with other programs. DataStar can easily be used as the data entry portion of your inventory, accounting, or employee applications programs without requiring extensive modifications to your existing software.

- Use DataStar with most CP/M* supported programming languages, including BASIC, FORTRAN, and COBOL. DataStar can construct data files for use with programs written in any of these languages. This feature allows greater programming flexibility and reduces programming costs.

*CP/M is a trademark of Digital Research

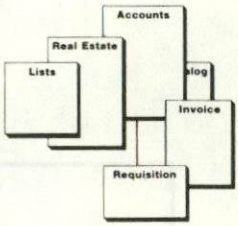
- Help Screens provide all the commands you will need.
- Extra Help Messages provide explanations of procedures.
- Prompts are flashed on the screen to tell you what to do next or to explain an error.

How DataStar Works

DataStar has two parts: FORMGEN and DATASTAR.

In **FormGen** you create a form or input format uniquely designed to meet your data entry requirements.

In FormGen you design fields or blanks in which data will be entered later on. Each box (or blank) is accompanied by background text or labels. At this time, you have the option of assigning special characteristics (attributes) to these fields. These characteristics will be activated during data entry to protect against errors, to provide calculations or data from a reference file, or to provide format conditions.



Name: _____ Customer # _____
Address: _____
City: _____
State: __ Zip Code: _____
Phone: _____

Previous Balance: _____
Amount Charged: _____
Balance Due: _____

Invoice Form

Name: Carl South Customer #111111
Address: 20 Baltimore Ave.
City: Los Angeles
State: CA Zip Code: 90003
Phone: 7772121

Previous Balance: $20
Amount Charged: $30
Balance Due: $50

Invoice Customer Record

In **DataStar** you enter information (data) on your form and store that data on a record in the data file. Once the data has been stored, it's called a **Record.**

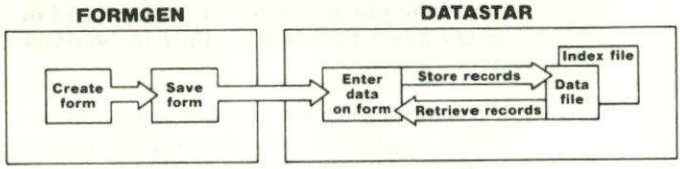
Later on you can use DataStar to retrieve those records; and once you retrieve them, you can modify, delete, or print the records.

Because you create and store your form in **FormGen** and then move to **DataStar** for data entry, the following safeguards are in effect:

1. There's no chance of ruining your form during data entry.

2. One person can design the form, and another can enter the data. No matter who enters the data, it must always meet the specifications set up by the form "designer."

Quite simply, here's the way DataStar works:



How To Use This Training Guide

THE TEXT AND FORMAT OF THIS GUIDE ARE DESIGNED TO PROVIDE . . .

Quick access to important information.

- The chapter text is presented in a narrow column, easy to read format with clearly defined steps. You read the explanation and take the action (enter a command or press keys) that is described in boldface type.
- All new information or notes of caution are easily recognizable by a shaded grey area accompanied by one of these symbols:

- The index allows you to find the information you want quickly.
- Key concepts and procedures are listed in the chapter summaries.

Examples and guidelines that show DataStar's flexibility.

- The training examples used in Chapters One, Two, and Three demonstrate DataStar's numerous possibilities.
- Sample forms are included in Appendix C. These forms can help you design an original form that fits your needs.
- Chapter Four outlines all the necessary steps and considerations for original form creation, data entry, record storage and retrieval. By the end of this chapter, DataStar will be doing your data entry tasks for you.

A thorough guide to DataStar, appropriate for operators with different levels of experience.

- While an inexperienced operator may work through the entire guide, an experienced operator may select just a few chapters for study, or simply follow the User's Map. The following description of each chapter will clarify these possibilities.

GETTING ACQUAINTED AND THE INTRODUCTORY CHAPTER: These are a must for beginners. The Getting Acquainted Section defines many microcomputer terms and procedures, while the Introductory Chapter covers how to install DataStar, create a work disk, invoke FormGen, read the FormGen Help Screens, and exit. For the convenience of beginners, each step is organized in a DO and WHAT HAPPENS format.

CHAPTER ONE: This chapter covers all the required steps for opening a file, creating a form, entering data on that form, storing records, and retrieving those records.

CHAPTER TWO: This chapter begins the study of the optional characteristics (attributes) that you can assign to any form. In Section A you review the attribute list and assign several attributes to an Invoice Form. In Section B you test those attributes by entering both correct and incorrect data on the form.

CHAPTER THREE: This chapter completes the study of attributes. In Section A you review an Order Form and its numerous attribute assignments. In Section B you enter data on the form and see the many features and safeguards that attributes can provide.

CHAPTER FOUR: Only form designers need to complete this chapter. Here you are guided through all the steps necessary to transfer your data entry tasks to DataStar. In Section A you design an original form (using one of your existing forms or adapting one from

samples provided in Appendix C) and assign attributes to it. In Section B you enter data on that form and store, retrieve, and print records.

CHAPTER FIVE: This chapter is a summary of two important DataStar activities — Batch File processing (for large scale data entry jobs) and File Maintenance (for deleting marked records and sorting your file).

APPENDIX A: Explains each attribute clearly and simply.

APPENDIX B: Lists many of the error messages that could appear on your screen, as well as explains how to correct the errors.

APPENDIX C: Gives you sample forms and ideas for attribute assignments.

APPENDIX D: Contains the DataStar User's Map and quick guides to the FormGen/DataStar program. An experienced operator may find that these guides are all he/she needs to use DataStar; less experienced operators will find that these guides are excellent reminders.

APPENDIX E: Describes how to use DataStar with the MicroPro family of programs.

Introductory Chapter
Getting Acquainted

Some Terms You May Need To Know

The following concepts may be helpful when you begin to work on microcomputers. As we will frequently remind you:

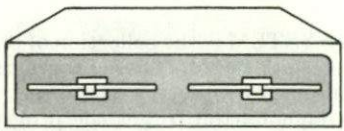
> **There is no need to remember all these terms.**
> Just refer back to this list when you have terminology questions.

A **COMPUTER SYSTEM** includes hardware and software.

THE **HARDWARE** IS THE "NUTS AND BOLTS," INCLUDING THE COMPUTER, THE HARD DISKS AND DISK DRIVES, THE CRT (SCREEN) TERMINAL, AND THE PRINTER.

The **COMPUTER** contains the Memory (RAM), and manipulates the incoming information. All data that you type is held in temporary memory (RAM) until you cause it to be stored either on a hard disk or a floppy disk. This permanent "saving" of data is initiated differently in various computer programs, but it is usually easy to tell where it takes place in a program. If you turn the computer off without saving your data on a disk, the data will be lost.

The **HARD DISKS** are permanent storage for large amounts of information (not all systems have them). The **DISK DRIVE**(s) spins the disk (either hard or floppy) while information is recorded on or retrieved from that disk.

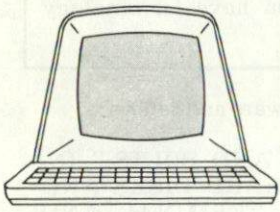


The **LOGGED DISK DRIVE** is the disk drive you're working on: the logged disk drive is usually A when a CP/M system is started. The logged disk drive can be changed at the system prompt:

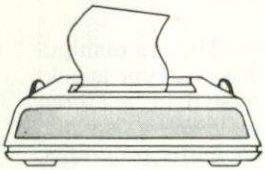
TYPE B: (changes logged drive to B)

PRESS **RETURN**

NOTE: We have used CP/M commands to demonstrate several housekeeping features such as copying files from one disk to another. If you do not use CP/M be sure to refer to your system manual and find the correct commands for your operating system.



The **CRT terminal** includes your screen and the keyboard. The terminal is your access to the computer. After you have started your system, the **SYSTEM PROMPT** (an example, A>) will be displayed on your screen. All commands are typed and then entered into the computer from the keyboard.

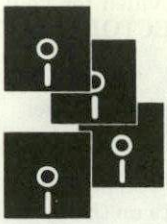


When you are working with Data-Star, the **PRINTER** will provide a printout of any information that is on the screen or has been stored in a file.

As a good rule of thumb, **turn your computer off** when you won't be working on it for the next hour (remember to save any work in progress and remove your disks before turning off your system). Otherwise, you can enter a save command, then leave your work on the screen while you take a break.

THE **SOFTWARE** PROGRAM CONTROLS THE INTERACTION BETWEEN YOU AND THE COMPUTER.

The **OPERATING SYSTEM** is the collection of programs that "runs" the computer (e.g., CP/M). These programs are usually on system disks. In many computers, you insert your system disk and push the boot button to get the program running. Since operating system procedures vary, you will frequently be instructed to refer to your system manual.



The **FLOPPY DISKS** are flexible plastic (5¼" or 8") disks used to store programs and data. DataStar is distributed on a floppy disk.

Handle disks with care. Learn the correct way to insert disks in your system. Be careful not to touch or scratch the exposed areas.

MORE ABOUT DISKS

Don't worry if you do not understand the sample commands below. Later on you'll use these for reference.

COPYING disks, or files from disks, can be accomplished at the system prompt:

TYPE **Pip B:=A:*.*[v]** (copies entire disk from the one in drive A to the one in B drive)

TYPE **Pip B:=A:filename** (copies a specific file from A drive to B drive)

ERASING a disk (to reuse) can be accomplished at the system prompt:

TYPE **Era *.*** (erases entire disk)

TYPE **Era filename** (erases a specific file)

DISK CAPACITY is the number of characters (bytes) a disk can hold. An 8" single density disk may hold approximately 241K (243,892 characters). A small capacity 5¼" disk may have approximately 80K or more of space.

Doing a **status check** means checking how much space you have left on your disk. In CP/M this status check can be accomplished at the system prompt:

TYPE **Stat**

FILES

In DataStar, a **File** is a collection of records that have been entered and stored in the computer either on a hard or floppy disk. All information or data typed into the computer is only in temporary memory (RAM) until you cause the data to be stored permanently in a file. A file is identified by a filename of 1-8 characters.

Once you've created files (or had some provided for you), you can see a list of them on your **FILE DIRECTORY**. In CP/M you call up this list at the system prompt:

TYPE **Dir** (lists all files on logged disk drive)

IN DATASTAR
DataStar has two parts: FormGen is where you begin by creating a form. DataStar is where you enter data on the form (later on) to create new records or modify existing ones.

DataStar helps you every step of the way with **Help Screens** and **prompts.** Help screens, displayed at the top of your screen, list the commands you may need for work in progress. Prompts are displayed near the top of your screen anytime DataStar needs to ask you a question or instruct you about errors and procedures.

Invoking FormGen or DataStar means to call up the program for your use.

In DataStar the **CONTROL Key** is used in conjunction with another key to enter specific commands. When you see PRESS CTRL J, PRESS the CONTROL key *at the same time* you press J.

FOR QUICK REFERENCE

FORMGEN EXIT COMMANDS
(Be sure to hold the CTRL key down while you type the other letters.)

PRESS CTRL C B (save your work and boot the system)
PRESS CTRL C A Y (*aborts* any work in progress)

To Exit from the FormGen Attribute list use this command:

PRESS CTRL C C B

DATASTAR EXIT COMMAND

PRESS CTRL E E C

START-UP COMMANDS (at your system prompt)

TYPE **FormGen filename**

TYPE **DataStar filename**

Introductory Chapter

Easy Beginnings

Step 1 Start Up

DO: Follow this checklist for easy beginnings: (Because computers vary, consult your hardware manual for specific details.)

- Turn on your computer and terminal. Never turn your computer on or off with floppy disks in the disk drives.
- Switch on your printer, load it with paper, check the page alignment and the ribbon.
- Place a disk containing *your operating system* (e.g., a CP/M boot disk) in the disk drive.
- Boot the system.

WHAT HAPPENS: Your system prompt will appear on the screen.

You needn't worry: Your computer is a logical friend who will do what you tell it to do. If you make a typing or command mistake, this training guide will show you ways to recover from the error.

Step 2 Make a Work Disk

To simplify loading procedures later on, we recommend you do the following:

a. Copy your operating system and the DataStar program (distribution disk) onto a new blank disk.* Keep your original DataStar distribution disk in a safe place.

* You must have a disk with at least 100K of space to accomodate these files. For systems that use smaller disks, consult your hardware manual or ask your dealer what is the most efficient use of your disk space.

b. Use this new disk (containing your operating system and your DataStar program) for any files you create in Chapters 1-3.

Here are basic steps for making the work disk.

DO: Get a blank disk that has been formatted correctly for your system. Make a copy of your operating system program. Check your manual for the correct procedure; many systems use a program called Sysgen.

DO: Also copy the file status utility and copying utility files from your system disk onto your work disk. (In CP/M systems use STAT and PIP.)

DO: Next, copy your DataStar files (the distribution disk) onto your work disk. (CP/M systems use the PIP command; consult your manual.)

WHAT HAPPENS: Both your system program and your DataStar files are now on a work disk. To see your directory, go on to the next step.

If you are using disks that are too small to hold the utilities and DataStar files, you may have gotten a "Disk full" or a $$$ message. Consult your manual or ask your dealer for help.

Step 3 Look At Your Files

DO: With the work disk that you just created in the disk drive you will normally use, type your system's directory command. (Remember, the words you should type and the keys you should press will be printed in boldface type.) For example, in CP/M at the system prompt for your work disk:

TYPE **Dir** (may be typed in upper or lower case)

PRESS **RETURN**

WHAT HAPPENS: You will see a list of the files on your work disk. While the operating system program will not show up on your directory, the file copying and status programs and your DataStar files should be listed.

DO: To make sure you have all the necessary files, compare the list of DataStar files on your screen with the list on page I-16 of this chapter.

Step 4 Do a Status Check

When you begin to create files, you will need to do frequent status checks to ascertain how much usable space you have left on a disk. Practice doing a status check on your newly created work disk. For example, in CP/M at the system prompt:

TYPE **Stat**

PRESS RETURN

You will need approximately 10K of space on this work disk (single or double density) to complete Chapters 1-3.

In Step 5 you will install DataStar for use on your terminal. Skip to Step 6 if you know that someone else has installed DataStar for you.

Step 5 Install DataStar

DO: To install DataStar follow these steps:

PRESS CTRL C (holding the control key down while you type C)

TYPE **DInstall**

PRESS RETURN

WHAT HAPPENS: Install will take a few seconds to load. Then the DataStar install message will be displayed, followed by a list of terminals with letters that correspond to terminals.

DO: TYPE in the **letter** that corresponds to your terminal. If your terminal is not on the list, type a 2 or a 3 to get a list of other terminals.

WHAT IF YOUR TERMINAL IS NOT LISTED?
In the unlikely event that your terminal is not on one of the lists, refer to the modification instructions in Appendix B, DataStar User's Guide 1.1. Ask your dealer to help you if you have problems.

WHAT HAPPENS: After you have typed in the letter that corresponds to your terminal, a confirmation request will appear.

DO: TYPE **Y** or **N** to answer the confirmation, as appropriate.

WHAT HAPPENS: If you type Y, the program will configure DataStar for your use and then this prompt will be displayed:
Is this installation for MP/M?(Y/N):

DO: If you are working on an MP/M system:

TYPE **Y**

If you are *not* working on MP/M:

TYPE **N**

WHAT HAPPENS: This prompt will be displayed:
Disable line feeds to printer? (Y/N):

DO: Some printers are set up to do a line feed with each carriage return, thus causing an extra line feed. Check your manual for your printer. If your printer is one of these:

TYPE **Y**

If your printer does not provide an extra line feed with each carriage return:

TYPE **N**

WHAT HAPPENS: When the system prompt reappears, DataStar is ready to use.

Step 6 Erase a File

DO: As part of your introduction to DataStar, you will create a file called CUSTOMER. This file should not now be present on the disk, but may be there if it was not erased by the last person who used the demonstration file. To make sure the file is not present, at the system prompt:

TYPE **Era customer**

PRESS **RETURN**

Note: If you're using DataStar 1.4, you'll need to type **ERA Customer.DEF**

WHAT HAPPENS: You may get this message: **No file exists** if the Customer File has already been erased...OR...your operating system will erase the file. In both cases, your system prompt will return to the screen.

A file is a storage unit for information that has been entered into the computer in the form of text, data, or programs. Files store this information in a specific order, under a name, on a disk. In FormGen, the forms you enter will be stored in the form definition file (or FormGen file). This file contains the specifications to re-create any form that has been stored there. Creating a FormGen file is the mandatory first step in the DataStar process. In the next step you will create and name a new FormGen file.

Step 7 Invoke FormGen

DO: To invoke FormGen, do the following at the system prompt:

TYPE **FormGen**

PRESS RETURN

WHAT HAPPENS: The FormGen copyright notice will appear, followed by the prompt: **Enter name of form definition file.**

DO: TYPE **CUSTOMER**

PRESS RETURN

WHAT HAPPENS: You have just created a new FormGen file under the filename "Customer," and FormGen Help Screen 4 appears.

DO: Help Screen 4 explains how to create a form and introduces the terms "data fields" and "background text." Read the Help Screen.

FormGen is where you create a form that you'll use later on for data entry. When working in FormGen, you have four Help Screens that explain how to create a form and list all the commands you may need to create a form. You can always tell when you're in FormGen because the upper right corner of the screen will list Help Screen 1, 2, 3, or 4.

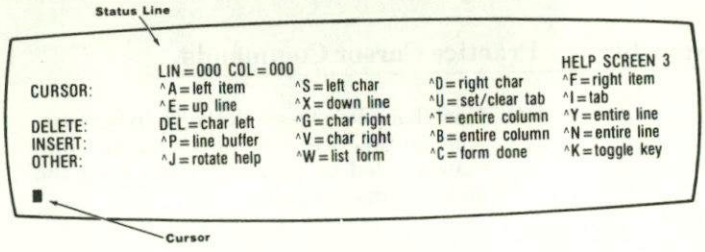
Step 8 FormGen Help Screen

DO: After reading FormGen's Help Screen 4, do the following:

PRESS CTRL J

Again, remember this CTRL symbol before a letter means hold the Control Key down while you type the letter. Another way of depicting the Control Key is the symbol Λ. You will see this symbol on your Help Screens.

WHAT HAPPENS: Help Screen 3 is displayed at the top of your CRT screen with blank space below. See the illustration below.

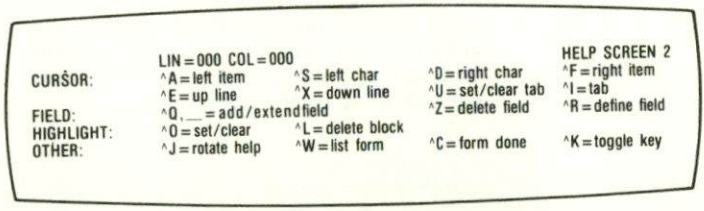


Step 9 More Help Screens

DO: Use the following command to get Help Screen 2 on your screen:

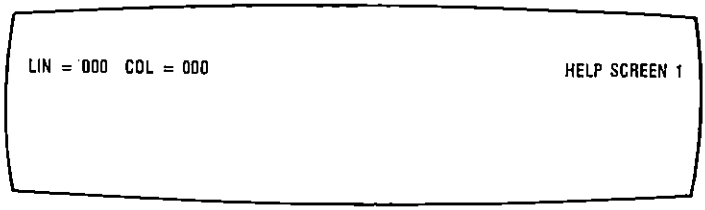
PRESS CTRL J

WHAT HAPPENS: Help Screen 2 appears; it is also illustrated below.



DO: PRESS CTRL J

WHAT HAPPENS: Help Screen 1 appears. This is the shortest help screen. It lists only the Status Line and allows maximum screen space for a form.



DO: PRESS CTRL J (two times to get Help Screen 3)

Step 10 Practice Cursor Commands

DO: Now that you've seen all the Help Screens, you can practice some of the cursor commands listed on Screen 3. First read the new information below.

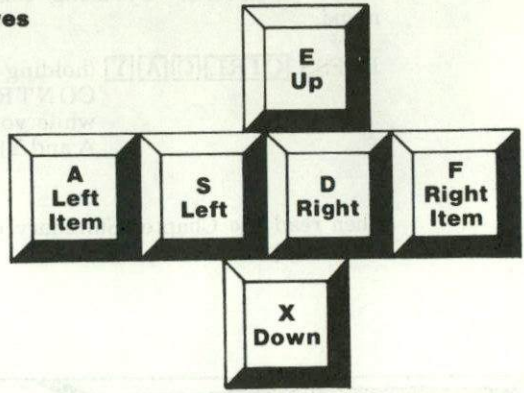
NEW INFO

The status line should show that the cursor is positioned in line 000, column 000, if you have not typed any characters or spaces. As you enter text, the cursor will move across the screen. The position of the cursor is always listed on the Status Line at the top of your help screen. When the cursor comes to the end of a line, it "wraps around" to the beginning of the new line.

DO: After looking at the key illustrations below and your help screen, type *two* or *three* lines of any text. Next, use the cursor command to move the cursor up/down and to each side. Finally, use the delete commands to clear your screen.

Use the Control Key [CTRL] plus one of the keys below for cursor movements and deletions.

Moves



Deletes

[^] [G] = DELETES TO THE RIGHT

[DELETE] = DELETES TO THE LEFT

OR

[RUB] = DELETES TO THE LEFT

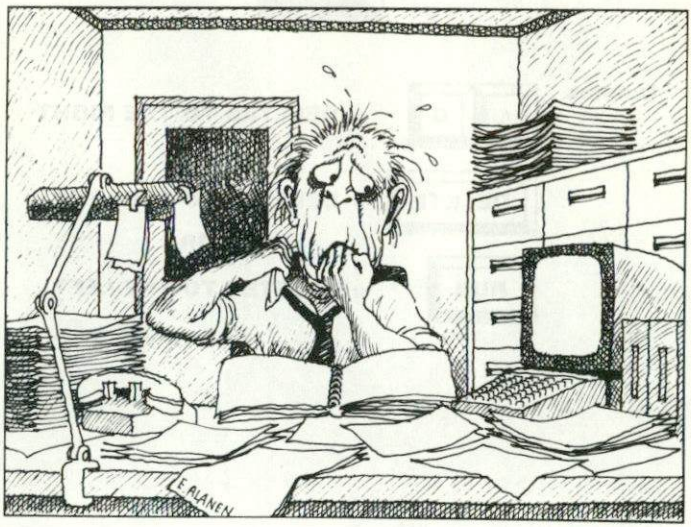
Step 11 Finish

DO: When your screen is cleared, you are finished with the Introductory Chapter.

EXIT FORMGEN by using this command.

PRESS CTRL C A Y (holding down the CONTROL Key while you type C, A and Y)

Then read the Chapter Summary on the following page.



Introductory Chapter

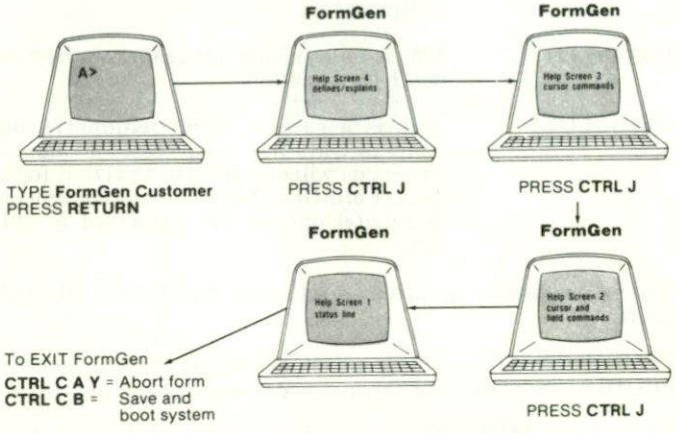
Summary

First, review the Introductory Glossary at the beginning of this chapter. Then read the information below.

DataStar has two parts: You use **FormGen** to create your form and **DataStar** to enter data on that form (later on).

After you have installed DataStar for your terminal (p. 9) and created a work disk (pp. 6-7), you can use the following steps to get started in FormGen:

When your system prompt is displayed, type the following sequence of messages and commands (shown in dark print).



Type Your Form at Help Screens 1, 2, or 3

The Distribution Disk

The disk you received when you purchased **DataStar** contains the following files:

DATASTAR.COM	Uninstalled **DataStar**: Installation for your terminal is achieved by running INSTALL as described earlier in this chapter.
FORMGEN.COM	Uninstalled **FormGen**: Installation for your terminal is achieved by running INSTALL as described earlier in this chapter.
DINSTALL.COM	**DataStar** installation program: This file is used to customize (install) **DataStar** and **FormGen** for a particular hardware configuration.
BATCH.OVR	This is an auxiliary program required for batch file selection.
ORDER.DEF	This is a sample form demonstrating many of **DataStar's** features. In Chapter Three you will examine the ORDER form, using **FormGen**. All of the field definition (attribute) options are exercised in this form.

The following files are used as reference files by the ORDER form:

PRODUCTS.DTA PRODUCTS.NDX	This is a sample file with records containing product code, description, and price.
OKSTATES.DTA OKSTAKES.NDX	This is a sample file containing a two-digit postal abbreviation of states followed by the sales tax for that state.
CUSTOMER.DTA CUSTOMER.NDX	This is a sample file with records containing customer name, address, city, state, zip code, and customer number.

Chapter One

A Form Becomes a Record

Section A: Creating the Form

Step 1 Invoke FormGen

If you exited FormGen at the end of the last chapter, get your system prompt on the screen. Then use the following commands to invoke FormGen.

TYPE **Formgen Customer**

PRESS [RETURN]

Then rotate the Help Screens until Help Screen 2 is displayed.

PRESS [CTRL][J] (the CONTROL Key and J)

If you are continuing from the last chapter, call up Help Screen 2.

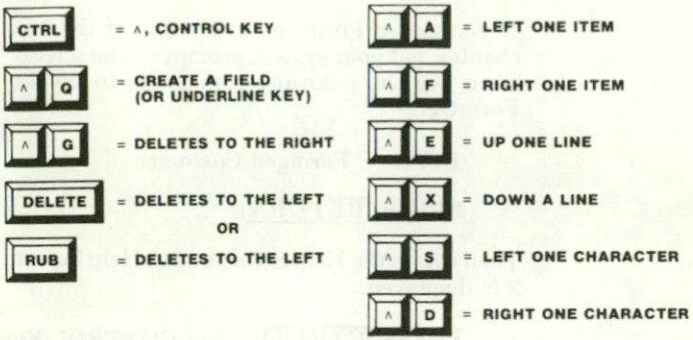
PRESS [CTRL][J]

You're going to create a form that looks like this:

```
Name:    ____________________
Address: ____________________
City:    ____________________
State:   __      Zip Code:  _____
Phone:   _______
```

Step 2 Review Cursor Commands

The illustration below shows some of the cursor commands you may need while typing your form. Help Screen 2 also lists these commands. Also, remember the last step in each chapter lists exit commands, use these any time you need to exit.


CTRL = ^, CONTROL KEY
^ Q = CREATE A FIELD (OR UNDERLINE KEY)
^ G = DELETES TO THE RIGHT
DELETE = DELETES TO THE LEFT
OR
RUB = DELETES TO THE LEFT
^ A = LEFT ONE ITEM
^ F = RIGHT ONE ITEM
^ E = UP ONE LINE
^ X = DOWN A LINE
^ S = LEFT ONE CHARACTER
^ D = RIGHT ONE CHARACTER

WHAT HAPPENS IF YOU HIT THE WRONG KEY?

If you make a mistake and type in the wrong letter(s), simply use the cursor commands listed on your help screen to delete the errors. If for some reason (power failure, etc.) your screen gets garbled messages or goes blank, simply turn off your terminal for a few minutes, then invoke FormGen (Step 1) and start over.

Step 3 Create the Name Field

The NAME field will look like this:

Name: _____

Put the cursor in line 000, column 000 (as shown on the Status Line at the top of your screen).

TYPE **Name**
followed by a colon
followed by 4 spaces
followed by 20 underlines (or
USE **CTRL Q**)

PRESS **RETURN**

Step 4 Create the Address Field

The ADDRESS field will look like this:

Address: _____

Put the cursor in line 001, column 000.

TYPE **Address**
followed by a colon
followed by 1 space
followed by 20 underlines (or
USE **CTRL Q**)

PRESS **RETURN**

If you've tried to move the cursor using CTRL A and CTRL F, you may have noticed these commands will move the cursor from field to field or text to text, but not through both. Use CTRL S or CTRL D to move between both text and field. The BACKSPACE key also lets you retrace your steps to correct or replace characters.

Step 5 Create the City Field

The CITY field will look like this:

City: _____

Put the cursor in line 002, column 000.

TYPE **City**
followed by a colon
followed by 4 spaces
followed by 20 underlines (or
USE **CTRL Q**)

PRESS **RETURN**

Step 6 Create the State and Zip Code Fields

The STATE and ZIP CODE fields will look like this:

State: ___ Zip Code: _____

Put the cursor in line 003, column 000.

TYPE **State**
followed by a colon
followed by 3 spaces
followed by 2 underlines (or USE CTRL Q)
followed by 4 spaces

TYPE **Zip Code**
followed by a colon
followed by 1 space
followed by 5 underlines (or USE CTRL Q)

PRESS RETURN

Step 7 Create the Phone Field

The PHONE field will look like this:

Phone: _____

Put the cursor in line 004, column 000.

TYPE **Phone**
followed by a colon
followed by 3 spaces
followed by 7 underlines (or USE CTRL Q)

PRESS RETURN

You've completed typing the Customer Form.

NEW INFO

When you finish typing a form, you must enter a save command which signals FormGen to store a copy of the form in a FormGen (form definition) file, under the filename Customer.DEF. The picture on the right is one way to show this file.

Every form must meet certain requirements before DataStar will store it. Go on to the next step to try the save command.

Step 8 Is the Form Finished?

Save your form.

PRESS CTRL C

The following error message will appear at the top of your screen: **??? No Key field has been established.** (Choose at least one field as a sort field; use CTRL K to assign key status.)

PRESS the SPACE BAR (to return to your form)

Read the following new information.

NEW INFO

A form is not complete for DataStar use until at least one field is designated as the KEY FIELD. This field will be helpful to you later when you want to locate specific records.

Step 9 Assign a Key Field

Use the following cursor commands to move the cursor into the last data field (PHONE). See illustration below:

Phone: ▮_____

PRESS CTRL E (to move up)

PRESS CTRL D (to move to the right)

PRESS CTRL K

The seven underlines change to *******. The asterisks indicate that this data field is now your KEY field.

Step 10 Save Your Form

Your form is now complete. Store your form in the FormGen file.

PRESS CTRL C C (press the CONTROL Key and C, then C again)

CONGRATULATIONS!
YOU HAVE JUST CREATED
YOUR FIRST FORM.

Step 11 Finish

This is the end of Section A. To continue on to Section B, just turn the page.

You can exit FormGen at any time.

PRESS CTRL C B (save work and boot the system)

Hold the CONTROL key down while you type the other letters.

Chapter One

A Form Becomes a Record

Section B: Creating and Finding Customer Records

Step 1 Begin

If you are continuing from Section A, leave your Customer Form on the screen and read the new information below.

If you are at your system prompt, bring up Formgen and your Customer Form.

TYPE **FormGen Customer**

WHAT HAPPENS WHERE?
As you probably know, DataStar has two parts: FormGen and DataStar. FormGen is where you create or edit a form and store it. DataStar is where you enter information on the form and store the records. "Chaining DataStar" is taking your completed form from FormGen to DataStar so that you can begin to enter customer information on the form. Once your form arrives in DataStar, the background text and data fields cannot be altered. In fact, you'll soon notice that in DataStar the cursor will move ONLY IN the data fields.

Step 2 Proceed to DataStar

With the Customer Form on your screen, use the following command to proceed to DataStar.

PRESS CTRL C D

Your screen will go blank for a few seconds. When your form returns to the middle of the screen, DataStar's Mode Selector Screen will be listed at the top. Read the following new information and see the illustration.

Mode Selector Screen

```
ADD MODE                                    current form = customer
  Enter character to select new mode:

A = Add new records          K = select records by KEY     E = Exit current form
I = SCAN in Index order      D = SCAN in Data file order   M = edit scan Mask
B = select Batch file        V = Verify batch file
F = File maintenance         J = Help                      SPACE = current mode
```

WHERE AM I?

Anytime you see the Mode Selector Screen or any menu with the word Mode, you are in DataStar. The Mode Selector Screen acts as a kind of train station in DataStar because from here you can select to go in several different directions to do various tasks.

The Mode Selector Screen lists each of DataStar's Modes and the corresponding letter (command) needed to enter that Mode. Since the default is the Add Mode when entering DataStar, you are set up to go into the Add Mode by simply pressing the SPACE BAR (listed on your Help Screen, bottom right).

MODES

DataStar has several MODES or ways of operating. You select a mode according to the kind of work you need to do. Each mode has a Help Screen which displays the mode name in the upper-left corner and lists all the commands you may need while working in that mode. (This mode name always indicates that you're in DataStar.)

You have just entered the ADD MODE and, as the name implies, in this mode you type data on your form and then add records to your file. Review the new commands on the Help Screen before continuing.

```
ADD MODE     /BATCH A: filename      current form = customer
CURSOR:      ^A=prev field   ^S=left char    ^D=right char    ^F=next field
             ^T=first field  ^L=last field
FIELD EDIT:  ^G=delete char  ^V=insert hole  ^C=copy from previous record
OTHER:       ^Z=restore screen ^U=print form ^O=print data    ^J=help on/off
END/EXIT:    ^B=end entry    ^E=exit current mode
```

Step 3 Enter Data

You're now ready to enter data on the form, and the cursor is positioned at the beginning of the first data field (NAME). Remember, you can backspace to fill in missed items and press DEL or CTRL G to remove unwanted characters.

You'll enter your own name (no longer than 20 characters) and address to create your first record. Move the cursor to the beginning of the first field.

TYPE your **name**

PRESS **RETURN**

The cursor moves to the next field (ADDRESS).

TYPE your **address**

PRESS **RETURN**

Again, the cursor moves to the next field (CITY).

TYPE the name of your **city**

If you have not filled the field:

PRESS **RETURN** (to move to the next field [State])

TYPE the **postal abbreviation** of your State (in CAPS)

The cursor *automatically* moves to the next field (ZIP CODE). The cursor moved because the STATE field was full.

TYPE your **zip code**

Again, the cursor *automatically* moves to the next field.

TYPE your **telephone number** (no hypen)

You've completed entering data. Go on to Step 4.

Step 4 Store the Information

When you've completed entering data in the last field on your form, DataStar uses the following prompt to ask you if you want to store the information that you have just entered:

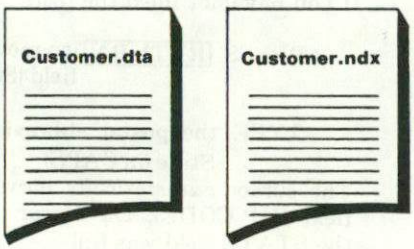
Hit RETURN to file entered data, RUB* to erase all items on screen, or CTRL E to exit the current mode. Type any other character to return to top of form and continue.

PRESS RETURN (to file the data)

NEW INFO

DataStar has *two* files for storing your records. When you pressed RETURN, you told DataStar to store the entire Customer Record in a data file (Customer.dta). At the same time DataStar stored a copy of the Key field in an index file (Customer.ndx). You'll learn more about data and index files in the following chapters.

DataStar Files



*or the delete (DEL) key

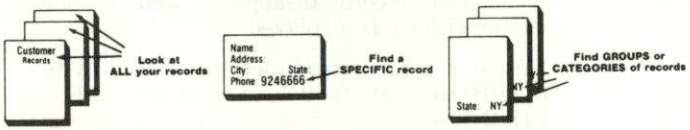
Step 5 Another Record

An empty form is again displayed on your screen, ready for you to enter data. Create another Customer Record by repeating Steps 3 and 4. Use a different Name, Address, and Phone number (no hypen). When the entry is completed,

PRESS [RETURN] (to store the record)

RETRIEVING RECORDS

In addition to the two Customer Records you have just created, nine other Customer Records have been included in a file on your DataStar disk. These extra records are provided to help you practice retrieving records from DataStar's data files. DataStar has several methods for helping you find just the record or records you want.



Step 6 Retrieve All Your Records

In later chapters you'll learn more about how DataStar retrieves your records. For now, have a look at all the Customer Records in the data file, one at a time, by following these steps.

PRESS [CTRL] [E] (to leave the Add Mode)

TYPE D (for Data Scan Mode)

A Customer Record is displayed.

PRESS [CTRL] [N] (to look at each record in the file)

When DataStar comes to the last record in the file, you will see this prompt:

End of file. Hit the ESCAPE key to continue scan.

PRESS [ESC]

PRESS [CTRL][N] (to look at the rest of the records)

Read on before you take another action.

Step 7 Retrieve a Specific Record

Suppose you wanted to find a specific record rather than look at ALL the records in the file.

PRESS [CTRL][E] (to change modes)

TYPE **K** (for select by Key Mode)

Your last record disappears and a new customer form is displayed.

Notice that the cursor goes automatically to the PHONE data field (because you assigned PHONE as your Key field). Type your phone number here (no hyphen). The form disappears and there's your record! DataStar searched the Customer index file and found the record that matched the Key field numbers you entered.

Read on before taking any action.

Step 8 Retrieve Groups of Records

Suppose you want to find all the records that fit into certain categories (e.g., all customers from a specific city).

PRESS [CTRL][E] (to change modes)

TYPE **M** (for Edit Scan Mask)

Your previous record disappears, and a new customer form is displayed. The cursor is positioned in the first field, and all data fields are filled with asterisks. The asterisks mean you can now type information (in any field) that will tell DataStar which groups of matching records you want.

We'll look for all the records from NY State. Use your Help Screen cursor commands to move the cursor into the STATE field.

TYPE **NY** (in capitals)

Next, look at the Help Screen for the end of entry command.

PRESS [CTRL][B] (end of entry command)

DataStar will begin the search. DataStar will display the first Customer Record it finds from NY State.

PRESS [CTRL][N] (to see all the records, one at a time)

The "end of file" message appears.

PRESS [ESC]

PRESS [CTRL][N] (to continue to scan)

After you've seen all your records, read step 9.

Step 9 Finish

You've just seen the different ways DataStar retrieves your records for you. There's no need to remember the whole procedure; you'll practice retrieval methods again in other chapters.

This is the end of Chapter One. Use the following command to exit DataStar.

PRESS [CTRL][E][E][C]

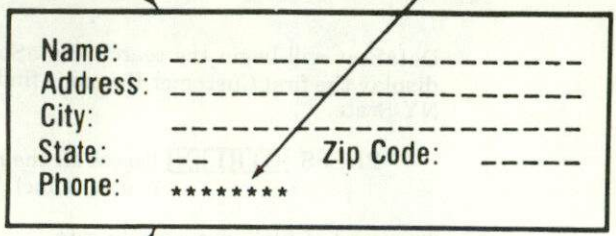
Then read the Chapter Summary on the next page.

Chapter One
Summary

Scan through the chapter and review all the new information that is set off in boxes. Then look over the information below.

In FormGen you...

- **Created the Customer Form: Background Text and Data Fields.**
- **Assigned a Key Field.**

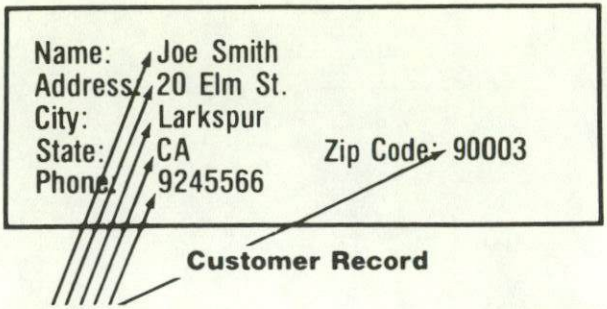


Customer Form

- **Stored the form in a form definition (FormGen) file by Pressing CTRL C C.**

Chained DataStar by pressing CTRL C D.

In DataStar you...

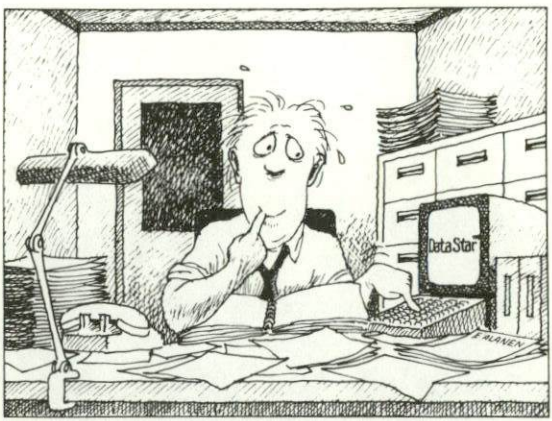


- **Entered data on the form while in the Add Mode.**
- **Pressed RETURN to *store* the data, as a customer record, in a data file. At the same time you stored a copy of the Key Field in an index file.**

Retrieved all your records from the Customer data file (Data Scan Mode).

Retrieved a specific record (select by Key Mode).

Retrieved groups of records by editing the Scan Mask.



NOTES

Chapter Two
Attributes

Section A: Assigning Attributes

Step 1 Rename a Form

In this chapter you'll create an invoice form by adding several data fields and attributes to the Customer Form. However, first you must RENAME the form to avoid confusion with your existing Customer data and index files.

Use the Rename command for your system. In CP/M, at your system prompt:

TYPE **Ren Invoice.**
DEF=Customer.DEF

PRESS **RETURN**

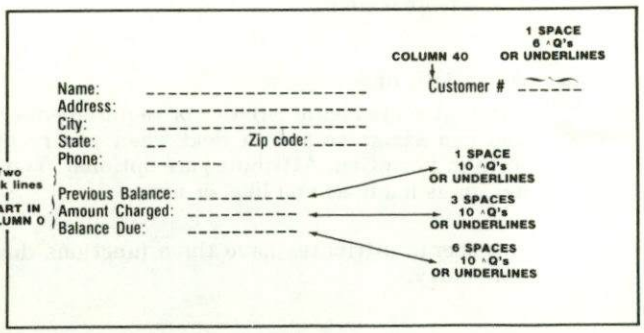
When the system prompt returns:

TYPE **FormGen Invoice**

PRESS **RETURN**

Your Customer Form will be displayed, now named Invoice (as shown on the Status Line).

Create Your Form to Match the Example Below



Step 2 Expand Your Form

Check the cursor commands listed on your Help Screen.

Then **create the four new data fields** by following the instructions on the illustration above. Use **CTRL Q** or the **underline key** to create data fields.

REMEMBER

Remember, if you make a mistake and type the wrong letters, simply use the delete commands listed on your Help Screen to delete errors. If for some reason (power failure, etc.) your screen gets garbled with messages from the computer or goes blank, simply exit FormGen with the abort command, CTRL C A Y, then reinvoke FormGen at your system prompt, and start over.

Step 3 Save Your Form

When you've finished typing the Invoice Form:

PRESS CTRL C C (to store the form in the form definition file)

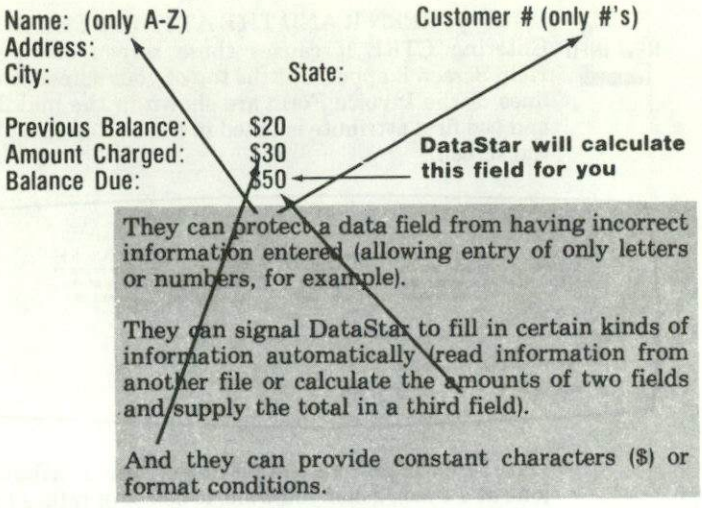
Note: As you learned in the last chapter, every form must have a Key Field. Because you assigned a Key field (PHONE) to this form when it was called "Customer," that Key field still exists, and DataStar does not prompt you to assign it again.

NEW INFO

ATTRIBUTES

Attributes are characteristics or requirements that you can assign to a data field when you create a form in FormGen. Attributes are optional. You can assign as many as you like, or none.

In general, attributes have three functions during data entry.


Name: (only A-Z)
Customer # (only #'s)
Address:
City:
State:
Previous Balance: $20
Amount Charged: $30
Balance Due: $50
DataStar will calculate this field for you
They can protect a data field from having incorrect information entered (allowing entry of only letters or numbers, for example).
They can signal DataStar to fill in certain kinds of information automatically (read information from another file or calculate the amounts of two fields and supply the total in a third field).
And they can provide constant characters ($) or format conditions.

Step 4 Look at the Attribute List

You're just going to have a look at the attribute list now. You'll practice assigning attributes later. Position your cursor *in* the first space of the NAME data field, like this:

Name: ▮_____

PRESS CTRL R (to begin the attributes list)

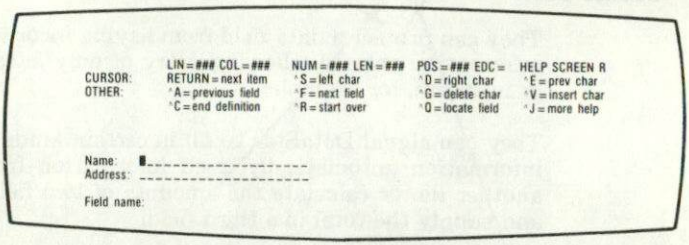
If the cursor is not IN the data field, you may get the error message:

Cursor is not in a field. Hit ESCAPE key.

Read the following new information before continuing.

NEW INFO

HELP SCREEN R AND THE ATTRIBUTE LIST
Entering CTRL R causes these screen changes: Help Screen R appears at the top of your screen; two lines of the Invoice Form are shown in the middle; and the first attribute is listed in the bottom part of the screen.


LIN=### COL=### NUM=### LEN=### POS=### EDC= HELP SCREEN R
CURSOR: RETURN=next item ^S=left char ^D=right char ^E=prev char
OTHER: ^A=previous field ^F=next field ^G=delete char ^V=insert char
^C=end definition ^R=start over ^Q=locate field ^J=more help
Name:
Address:
Field name:

DataStar will present the list of available attributes (one at a time), ask if you want to select or refuse the attribute (Y/N), or provide a space for you to type a response. First on the list is the option of giving this data field a name. Go on to the next step before taking any action.

Step 5 Examine the Second Attribute

PRESS **RETURN** (to see the second attribute - Field Order)

Field Order: 001

The Field Order number represents the order in which the field was created on the form (unless reassigned). This number specifies the order that customer information will be entered on the form in DataStar (unless you assign a new number).

Step 6 Continue the Attribute List

Appendix A of this guide contains a description of each attribute and its uses. Pull that section out and keep it in front of you for easy reference as you go through the attribute list on your screen. Since some attributes only appear after others have been assigned, *not* every attribute in Appendix A will appear on your screen at this time.

Read each attribute as it's presented.

PRESS **RETURN** (to continue the list)

There's no need to memorize anything. Data-Star will show you the list anytime you position the cursor in a field and PRESS CTRL R.

When the list is finished, your entire form and Help Screen 3 return to the screen.

Step 7 Assign Attributes to the Name Field

Keep your cursor in the NAME field.

PRESS **CTRL** **R** (to go through the attribute list again)

As each attribute is listed, follow the instructions below for assigning attributes to the NAME field. It's important that you enter your responses *exactly as shown.* If you make a mistake, follow the cursor controls on the Help Screen to go back, delete, or change. Later on in Section B you'll find out how these attributes work.

Field Name	PRESS **RETURN**
Field Order	PRESS **RETURN**
Copy Attributes	PRESS **RETURN**
Field Derived	PRESS **RETURN**

Required TYPE Y
(Assigning this attribute means the NAME field may not be left blank.)

Right Justify PRESS **RETURN**

Pad Field PRESS **RETURN**

Floating character PRESS **RETURN**

Verify Field TYPE Y

Sight/retype/File - S is the default,*

PRESS **RETURN**
(Assigning this attribute means an operator will be required to sight verify that the information entered in the NAME field is correct.)

Batch verify PRESS **RETURN**

Verify/calculate order: -
PRESS **RETURN**

Check Digit PRESS **RETURN**

Range Check PRESS **RETURN**

Edit Mask TYPE Y

Entry Control Character Codes -

TYPE ! **RETURN**

Content Control Character Codes -

TYPE A **RETURN**

Record Edit Characters -

PRESS **RETURN**
(Assigning these attributes means an operator will be required to enter information in the NAME field, and that information must be A-Z, no numbers.)

At this point the attribute list ends, Help Screen R disappears, and your entire form is returned to the screen.

* In computer lingo, default is the pre-set condition or response.

Remember, during the attribute listing, you can *press CTRL E to retrace your steps* and review or change a previous attribute assignment. You can also leave the list and *restore your entire form to the screen by pressing CTRL C* (your answers will not be lost).

After you've left the attribute list, you can take a break or exit FormGen anytime with one of these commands.

CTRL C B (save form and boot system)

CTRL C C (save form and continue)

If you have made several errors and wish to abandon this version and start over, you can use this exit command:

CTRL C A followed by **Y**

Step 8 Assign Attributes to Customer # Field

PRESS **CTRL** **F** (to move the cursor into the *first* space of the CUSTOMER # data field)

PRESS **CTRL** **R** (to begin the attribute list and then assign the attributes that are listed below)

Note: Only the attributes that you will assign to this field are listed below. For all others simply PRESS RETURN.

Required-TYPE **Y**
(The Customer # field may not be left blank.)
Edit Mask - TYPE **Y**
Entry Control Character - TYPE six !'s
Content Control Character - TYPE six 9's
(Assigning this attribute means an operator will be required to supply data to fill the field and the data must be numbers only.)

Step 9 Assign Attributes for the Previous Balance Field

Move the cursor to the *FIRST* position of the PREVIOUS BALANCE data field.

PRESS **CTRL** **R** (to begin the attribute list)

Assign the attributes listed below. For all others simply press RETURN.

PRESS **RETURN**

Right Justify - TYPE **Y**
(Assigning this attribute means information in the PREVIOUS BALANCE field will be automatically entered right to left.)

Floating Character - TYPE **Y**

Enter floating character - TYPE **$**
(Assigning this attribute means a $ will be constant in this field and will float to the left of any numeric data that is entered later on.)

Edit Mask - TYPE **Y**

Entry Control Character -

PRESS **RETURN**

Content Control Character -

TYPE ten 8 (fill the field)

(Assigning this attribute means that numbers and decimal points will be accepted in the PREVIOUS BALANCE field.)

The attribute list ends and the form returns.

Step 10 Assign Attributes for the Amount Charged Field

Here's a tip about assigning attributes. You may remember that each field on your form has a Field Number which was automatically assigned when the field was created on the form. The last field (PREVIOUS BALANCE) was 008, and the Field Number for this field (AMOUNT CHARGED) is 009.

Place your cursor in any position of the Amount Charged field.

PRESS CTRL R (to see the first attribute "Field Name")

PRESS RETURN twice (to get the third attribute)

Copy attributes of field ____

Because we want this field to contain EXACTLY the same attributes as the PREVIOUS BALANCE field, we can simply select this attribute.

TYPE **008**
Copy attributes of field 008

Since 008 is the number of the PREVIOUS BALANCE field, DataStar will assign identical attributes to the AMOUNT CHARGED field.

There's no need to go through the entire attribute list for this field.

PRESS CTRL C (to restore your form to the screen)

Step 11 Assign Attributes for the Balance Due Field

Move the cursor to the FIRST position of the BALANCE DUE data field.

Balance Due: ■_____

PRESS [CTRL] [R] (to begin the attribute list)

Assign only the attributes listed below. For all others simply press RETURN.

Field derived - TYPE **Y**

Calculated/File - TYPE **C**

Enter algebraic expression for field calculation - TYPE #10 = **#8+#9**
(Assigning this attribute means Data-Star should add the amounts in fields 8 and 9 and enter the total in the BALANCE DUE field.)

Right Justify - TYPE **Y**
(Assigning this attribute means data will be automatically entered from right to left.)

Floating Character - TYPE **Y**

Enter Floating Character - TYPE **$**
(A $ will be constant in this field and will float to the left of any numeric data that is entered later on.)

Edit Mask - TYPE **Y**

Entry Control Character -

PRESS [RETURN]

Content Control Characters -

TYPE **CTRL D** *seven* times
(to move the cursor into the eighth space of the field), followed by a period.

The results should look like this:

Balance Due: _____.__

PRESS [RETURN]

(Since this is a calculated field, the only assignment that is necessary is a period for decimal alignment.)

The list ends and your form is returned to the screen.

Step 12 Finish

Congratulations, you've finished assigning attributes.

PRESS CTRL C C (to save your Invoice Form and its attributes)

This is the end of Section A. You can continue on to the next Section by turning the page

-or-

exit FormGen.

PRESS CTRL C B (to save your form and boot the system)

Chapter Two
Attributes

Section B: How Attributes Work

Step 1 Chain DataStar

If you are in FormGen with your INVOICE form on the screen:

PRESS [CTRL] [C] [D] (to chain DataStar)

If you are at your system prompt:

TYPE **DataStar Invoice**

PRESS [RETURN]

Read the next step before taking another action.

Step 2 Create New Data and Index Files

Because this form is new, DataStar will check the logged drive to find the .dta file. When none is found, the following prompt will be displayed:

Enter disk drive to use for the Invoice.dta file (A,B...?)

Because the Invoice Form is new, you are being asked where (on which disk) to store the new data files. If you normally work on disk drive A, respond by typing A. (Since systems vary, check the system manual for more information.) Follow the directions below:

TYPE the letter (that specifies the disk drive that contains your work disk)

Next DataStar asks:

Enter disk drive to use for the invoice.ndx file (A,B...?)

TYPE the same **letter** (that you used for the data files)

DataStar will open both an index and data file, under filename Invoice, once you have replied appropriately to the prompts above.

Go on to the next step before taking any action.

Step 3 Go to Add Mode

DataStar takes all new forms directly to the Add Mode so that you can begin to generate customer records for storing in the data and index files.

Check the Help Screen to review cursor commands. Remember, in DataStar the cursor will move ONLY within the datafields. Also, if you have told DataStar to calculate a field for you (BALANCE DUE), the cursor will NOT enter that field.

Look at your form. Notice the floating characters ($) that you assigned in several fields.

JUST IN CASE
In the following steps you will be guided through the data entry process. If DataStar displays a prompt or error message *that is not discussed in the text*, you may have made a typing error when you were assigning attributes to your form. To remedy, exit DataStar without storing a record (CTRL EEC). Then invoke FormGen Invoice, review the assignments (Section A of this chapter), and delete or correct as necessary.

Step 4 Create a Customer Record

Enter data on your Invoice Form to match the example below.

Name: Carl South Customer #111111
Address: 20 Baltimore Ave.
City: Los Angeles
State: CA Zip Code: 90003
Phone: 7772121

Previous Balance: $25.00
Amount Charged: $40.15
Balance Due: ← **DataStar will calculate this field.**

When a field is completed:

PRESS CTRL F OR RETURN
(to move to the next field)

Notice, after the AMOUNT CHARGED field is completed, the cursor skips BALANCE DUE and goes to the first field on the form (NAME). At this point, DataStar switches to VERIFY MODE (shown on the screen, top left). Read the new information following.

VERIFY MODE
When any data field has been assigned the Verify Attribute, DataStar automatically switches to Verify Mode after all required customer information has been entered on the form. Because you assigned the Sight Verify Attribute to the NAME field, the cursor is now positioned at that field, and you are required to sight check the information. Go on to the next step.

Step 5 Verify and Store

Check that the information in the NAME field is correct.

If the information is not correct:

TYPE the **corrections**
PRESS RETURN

If the information is correct:

PRESS RETURN

At this point, the data for the BALANCE DUE field is calculated and filled in by DataStar. Then this prompt appears:

Hit RETURN to file entered data, RUB to erase all items on screen,...

PRESS RETURN

DataStar has now stored your customer record in the data file and a copy of the Key field in the index file. An empty INVOICE form is returned to the screen.

Step 6 Enter Incorrect Information

Move the cursor to the NAME data field.

TYPE in a **name** (beginning with a lower case letter)

The result is an ERROR MESSAGE:

A-Z are the only characters allowed here.
_____Ignored. Hit ESCAPE key.

PRESS [ESC]

RETYPE a **name** (beginning with an upper case letter)

ERROR MESSAGES
Any time you enter incorrect information in the fields on your form, DataStar will present an Error Message (near the top of your screen) that tells you what the error is. Remember, the Error Message occurs because you assigned attributes which allow only certain kinds of information in these fields.

Step 7 Test Another Attribute

Move the cursor to the first space of the CUSTOMER # field.

TYPE **a**

You will get an Error Message:

0-9 are the only characters allowed. a ignored. Hit ESC key.

Remember, you assigned a Numbers Only Attribute to this field.

PRESS [ESC] (leave the field blank, you'll see why later)

PRESS [CTRL] [F] or [RETURN]
(to move to the ADDRESS field)

Type in any address, city, state, phone number (no hyphen), and dollar amounts for PREVIOUS BALANCE and AMOUNT CHARGED. After you have completed the AMOUNT CHARGED field, signal the end of data entry.

PRESS [CTRL] [B] or [RETURN]

The following Error Message appears:

Field is not Complete. Hit ESCAPE key.

PRESS [ESC]

Notice, the cursor has moved into the CUSTOMER # field. Because you assigned a Must Enter Information Attribute to this field, it cannot be left blank.

TYPE the Customer # 222222
PRESS [CTRL] [B]

DataStar switches to Verify Mode and the cursor goes to the NAME field. Check that the information in the NAME field is correct.

PRESS [RETURN]

When DataStar asks if you want to file the information:

PRESS [RETURN]

You have just stored another customer record in the index and data files, and an empty INVOICE form returns to the screen.

Step 8 Create More Records

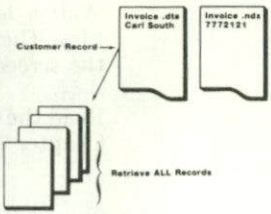
Create one more customer record using Customer # 333333. Try to trick DataStar by entering information that does not meet the attribute requirements you've set up for the data fields. If you find you get an error message that you don't understand, simply delete the information in that field and re-enter information similar to the kind you used in Step 4. When an Error Message appears, read the message and follow the instructions. When the form is complete:

PRESS [RETURN] (to store the record)

NEW INFO

GETTING THE PICTURE

You have just seen some of the ways attributes function to prevent the entry of incorrect information on a form. You have also stored three **Records** under the filename INVOICE.dta (datafile). To practice retrieving your Invoice records, go on to the next step.



Step 9 Retrieve All Your Records

PRESS CTRL E (to change Modes)

TYPE **D** (for Data Scan Mode)

One of your Invoice records will be displayed.

PRESS CTRL N (to see each record, one at a time)

If you want to go backwards in the file:

PRESS CTRL P

Remember, when DataStar comes to the end of a file you will get an ESCAPE message. Follow the instructions in the prompt.

Step 10 Finish

Because you will not work with these files (Invoice, Invoice.dta and Invoice.ndx) again, you'll need to erase them. Follow these steps.

PRESS CTRL E E C (to exit the Data Scan Mode and DataStar)

When the system prompt is displayed:

TYPE **Era Invoice.***

PRESS **RETURN**

Wait a few seconds as DataStar erases your files. Then your system prompt will return to the screen.

Read the Chapter Summary before going on to Chapter Three.

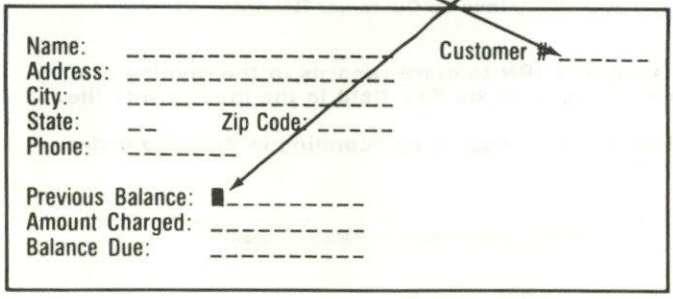
Remember, there is a complete list of attributes and a brief discussion of their functions in Appendix A of this guide. Also, Chapter Three discusses attributes in more detail.

Chapter Two
Summary

Scan the chapter to review all the new information that is set off in boxes. Then read the information below.

In FormGen you...

- **Created the Invoice Form by renaming the Customer Form to Invoice and typing the additional fields.**
- **Assigned attributes to several fields by positioning the cursor in a field, pressing CTRL R, going through the attribute list, and typing in the appropriate responses.**



Invoice Form

Stored the form and its attribute assignments in a form definition file by pressing CTRL C C.

Chained DataStar by pressing CTRL C D.

Entered the disk drive to use for new files.

In DataStar you...

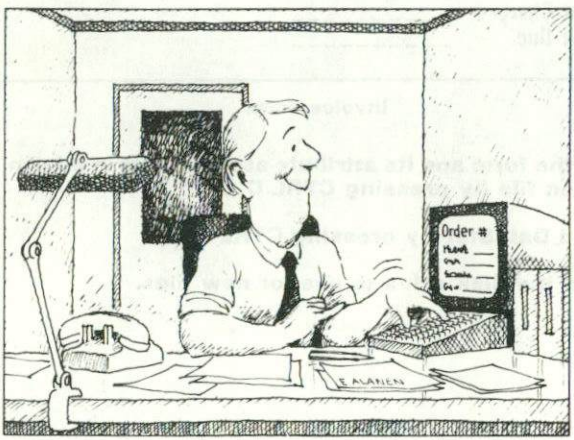
- **Entered data that fit the attribute requirements.**
- **Entered data that did *not* fit the attribute requirements and got error messages. Pressed ESC, and re-entered acceptable data.**

Name:	Carl South	Customer #111111
Address:	20 Baltimore Ave.	
City:	Los Angeles	
State:	CA Zip Code: 90003	
Phone:	7772121	
Previous Balance:	$20	
Amount Charged:	$30	
Balance Due:	$50	

Invoice Customer Record

Pressed RETURN to store records in the Invoice.dta file and a copy of the Key field in the Invoice.ndx file.

Retrieved your records by scanning in data file order.



Chapter Three

The Order Form's Attributes

Section A: Reviewing the Attributes

Step 1 Invoke FormGen Order

Invoke FormGen at your system prompt.

TYPE **FormGen Order**

An order form will be displayed on your screen. This form has been provided with your Data-Star disk.

Scan the Order Form on your screen. Notice the placement of data fields on the form. Those fields which help to identify the customer and the date the order was placed are positioned near the top: ORDER #, DATE, and CUSTOMER #. Also, because asterisks appear in the ORDER # field, you know this is the Key field.

Step 2 Print the Order Form

Check that your printer is turned on, the paper alignment is correct, and the ribbon is in place. You are then ready to print the Order Form.

PRESS CTRL W

If your printer is linked incorrectly, it will cause your screen to lock up. Check the manual for your printer if this happens.

The printout includes a five page listing of all the Order Form's attributes, so allow plenty of time for printing. If you're interested, the printout is duplicated at the end of this chapter.

Step 3 Review the Printout

Have your printout in front of you before continuing.

While the five page printout may seem confusing if taken all at once, each page simply lists one or more of the attributes that have been assigned to the form's data fields.

This kind of printout is helpful for keeping track of what attributes have been assigned on any form you may be working with. The following brief descriptions will help you begin to understand the printout.

Remember, attributes are listed and explained in Appendix A. You might want to pull those pages out and use them for reference as you work through this chapter.

Page 1 shows the entire form, background text, and data fields. The numbers in the data fields are the Field Order Numbers, or the order in which the fields were created on the form (Order # was created first). The same sequence will be used to enter customer information on the form in DataStar. (Field Order numbers may be reassigned).

Page 2 lists any Range Restrictions which have been assigned. On this form Range Restrictions apply only to the Month and Day fields. The top form contains the lowest allowable value (01/01), and the bottom form shows the highest allowable value (12/31).

Page 3 contains two forms that show what has been assigned under the Edit Mask Attribute. The top form lists any Entry Control Characters in the fields where they've been assigned (e.g., the X in the YEAR field represents an automatic copy character). The bottom form shows what Content Control Attributes have been assigned and where (e.g., the ORDER # field is filled with 9's, meaning numbers only may be entered here).

Page 4 lists all the attributes that have been assigned to the Order Form. Again, you don't have to decipher each symbol; just notice that the key at the top identifies what attribute each symbol refers to (e.g., Q=required, J=right justify). If field names had been assigned, they would be listed.

Another helpful feature, shown here in the far right column, is the list of files (provided with your DataStar disk) that DataStar will access to calculate and fill in certain fields. The File Access Attribute is explained in Appendix A.

Page 5 lists the algebraic expressions that DataStar will use to calculate the content of certain fields.

You have now reviewed the printout for the Order Form. Because you can get a similar printout for any form you create, you always have a record of the attributes you've assigned.

Step 4 Review the Attribute Assignments

With the Order Form on your screen, move the cursor into the CUSTOMER # field. Use the following command to begin the attribute list.

PRESS CTRL R

Help Screen R will appear, then the first line of the Order Form, and below that the first attribute (Field Name) will be listed.

After you've read each assignment, use the default* command below to continue the list. Do not change any of the assignments.

PRESS RETURN

*Default means the preassigned answer.

EXTRA HELP MESSAGES
For each attribute on the list, FormGen will display a Help Message that defines and explains the attribute.

PRESS CTRL J (for extra help)

The new help message will appear at the top of your screen.

PRESS RETURN (to delete the message and return to the attribute list)

When you have reviewed all the attribute assignments for the CUSTOMER # field, the entire form will be restored to your screen. You can use this procedure to review as many of the Order Form's data fields as you like.

As you move around the form, notice the changes on the Status Line at the top of the screen. When the cursor is *IN* a data field, the Status Line lists the length of that field, the position of the cursor within the field, and the Edit Mask Characters that have been assigned to that position in the field.

Step 5 Finish

This is the end of Section A. Use the following command to exit FormGen.

PRESS CTRL C A Y

Chapter Three
The Order Form's Attributes

Section B: Testing the Attributes

Step 1 **Arrive in DataStar**

At your system prompt, use the following command to invoke DataStar.

TYPE **DataStar Order**

Step 2 **Add Mode**

On your screen you will see the Add Mode Help Screen and your order form.

```
ADD MODE                                    current form = form name
  Enter character to select new mode:

A = Add new records          K = select records by KEY     E = Exit current form
I = SCAN in Index order      D = SCAN in Data file order   M = edit scan Mask
B = select Batch file        V = Verify batch file
F = File maintenance         J = Help                      SPACE = current mode
```

Two important fields on the Order Form, ORDER # and CUSTOMER #, are highlighted. They will appear bright, dim, highlighted, or in inverse video, depending on your terminal. On some terminals, there will be no special effect.

In each of the following steps you will experience how specific attributes work to control data entry. The attributes you'll be working with are listed at the beginning of each step. For additional clarification of certain attributes, check the list in Appendix A.

Step 3 Attributes: Pad Characters; Auto-Increment

When you begin to enter data on a form in the Add Mode, the cursor is usually positioned in the first data field.

On this form, however, the first field (ORDER #) contains the Field Derived by Calculation Attribute. This attribute means that DataStar will calculate (incrementing each record by one) and supply the information here. (There is no operator entry.) Therefore, the cursor is positioned at the right side (Right Justified) of the second field (M:month) for you to begin entering information.

Notice that both the ORDER # and MONTH fields are filled with 0's. This is an attribute called Pad Characters. In the MONTH field these pad characters supply the leading zero for months with numbers less than ten.

In the MONTH field:

TYPE **a number** *LARGER than* **12**

The cursor *automatically* moves to the next field (D:day) because the previous field was filled.

For the "D" field:

TYPE **today's date**

If the number is less than 10, a leading 0 is required. (This field does not have Pad Characters assigned.)

Step 4 Attribute: Entry Control Characters (Constant, Unconditional and Automatic Copy)

The cursor moves to the YEAR field. A *constant* and *unconditional* (Attribute) number 8 is assigned here. This 8 will appear each time the form is used and will be saved with the data.

TYPE **the second digit of the year**

After the first use of the form at any given session, this character will be automatically duplicated. Once a character is typed here, the character can only be changed by recalling the form.

The cursor *automatically* moves to the next field.

Remember, if you make a mistake, you can use DELETE and CTRL G to erase (only the month and year fields on this form cannot be erased due to their attribute assignments). If for some reason your screen goes blank or fills with messages from the operating system, try using CTRL Z to restore your form. If you get an error message, read the message so you know what the error was, then press the ESC key.

Step 5 Attribute: Right-Justify and File Access (Field Derived From the File)

Notice that the cursor is positioned on the right side of the CUSTOMER # field. As you type the customer number, the cursor will remain stationary and the characters will move to the left as a group. This demonstrates the Right-Justify Attribute.

Notice that the BILL TO fields are empty.

TYPE either your **telephone number** (no hyphens) or one of these numbers (1111111, 2222222, 3333333, 4444444, 5555555, 6666666, 7777777, 8888888, 9999999) in the CUSTOMER # field.

Now, look at the BILL TO fields again. DataStar automatically accessed the correct Customer file (specified by the number you typed in the CUSTOMER # field), and supplied the corresponding name and address information in the BILL TO fields. This attribute is known as File Access.

The cursor has moved to the field SHIP TO.

TYPE any **name**

PRESS **RETURN**

The cursor moves to the field ADDRESS.

TYPE any **address**

PRESS **RETURN**

Step 6 Attribute: Auto Case-Shift

For Ship to CITY:

TYPE the **name of a city** *(using all lowercase letters)*

Note that the first letter is automatically changed to uppercase.

PRESS **RETURN**

Step 7 Attribute: Letters Only

The cursor moves to the STATE field.

TYPE a **number**

An error message appears. Read the error message.

PRESS **ESC**

TYPE **two lowercase letters** that are not a state (for example, xx)

Note, since the content control code for these positions specified auto case shift, both letters are automatically changed to uppercase. Because you filled the field, the cursor automatically moves to the ZIP CODE field.

Step 8 Attribute: Numbers Only

For ZIP CODE:

TYPE a **letter**

An error message appears. Read the error message.

PRESS **ESC**

TYPE a **zip code**

Because you filled the field, the cursor automatically moves to the P.O. # field.

Both numbers and letters are allowed.

TYPE **a complex sample purchase order** (such as XYZ123456)

You *don't* have to fill the field.

If you don't fill the field:

PRESS **RETURN**

If you do fill the field, the cursor will automatically move to the SHIP VIA field.

TYPE a **method of shipping** (e.g., parcel post, using lowercase letters)

Again, the letters are automatically changed to uppercase.

PRESS **RETURN**

The cursor moves to the TERMS field.

TYPE **payment of terms (e.g., "net** 30," using lowercase letters)

Again, the case of the letters is shifted from lowercase to uppercase.

PRESS **RETURN**

The cursor moves to the QUANTITY field.

PRESS **RETURN** *(leaving the quantity blank)*

The cursor moves to the PRODUCT field.

Step 9 Attribute: File Access

Before you enter any information in the PRODUCT field, examine the list of product codes on page 3-21. Select a product code from the list.

TYPE the **Code** (in the PRODUCT field)

You do NOT have to type the hyphen (-). Like the 8 in the YEAR field, the hyphen is a constant. Because the hyphen is a *conditional* constant (defined to appear when a character is on either side), it appears only after the second character is entered.

After you typed a product code, DataStar accessed the Products.dta file, selected the information that matched the code you typed, and entered the product description and unit cost in the appropriate fields.

The next line is optional. If nothing else was ordered, you could save the form at this point. However, we will enter a second item.

In the QUANTITY field:

TYPE a **letter**

Read the error message.

PRESS **ESC**

TYPE a **number** (99 or less)

PRESS **RETURN**

TYPE another product code (from the list on page 3-22.

After you entered the product code, DataStar accessed the Products.dta File, selected the matching data, and supplied this data in the appropriate fields.

Step 10 Attribute: Range Verify

Because this is the last field on the form that requires an operator to enter data, DataStar assumes the form is complete, checks the fields, and begins to point out errors.

Remember, when DataStar displays an error message, the cursor will simultaneously point to the field that is the cause of the error.

Read the error message.

PRESS ESC

Correct the data at the cursor location (the M field) by entering the current month. If the number is less than "10," a leading 0 is required. (The 0-fill Attribute works only in the beginning data entry phase.)

The cursor may move into the next field (D:DAY). Signal the end of entry.

PRESS CTRL B

Step 11 Attribute: Required Field

Another error message appears. Read the message.

PRESS ESC

The cursor moves to the first QUANTITY field because this field contains the Required Attribute.

TYPE a **number** (press RETURN if the number is less than 100)

Then signal the end of entry.

PRESS [CTRL][B]

Step 12 Attribute: File Verify

DataStar switches to Verify Mode, and another error message appears. Read the message.

PRESS [ESC]

Replace the invalid state abbreviation with a real one, and go on to the next step.

Step 13 Attribute: Retype Verify

The cursor moves to the P.O. # field. This field has been assigned the Retype Verify Attribute. Before the data can be saved (in this field, or the entire form), what is typed in this field must be identical two times in a row. Originally, you typed a "complex number" here. Now you will type something else.

TYPE **your initials** (lowercase letters will be shifted to uppercase)

TYPE the **numbers of your address**

PRESS [RETURN] (if you don't fill the field)

An error message appears because there was no match with the information you had previously typed here.

PRESS [ESC]

TYPE **your initials**

TYPE the **numbers of your address**

PRESS [RETURN] (if you don't fill the field)

The field goes blank; once again, you are asked to retype the same information.

TYPE **your initials**

TYPE the **numbers of your address**

PRESS **RETURN** (if you don't fill the field)

Now there is a match, DataStar accepts the in-information and the cursor moves to the first QUANTITY field.

Step 14 Attribute: Sight Verify and Calculated Field

The cursor moved to the first QUANTITY field because this field contains the Sight Verify Attribute. Sight verification serves as a final check that the data is correct. If the data is not correct, you can change it. Assume the number is right, and signal the end of entry.

PRESS **CTRL** **B**

Now the corresponding TOTAL COST, SALES TAX, and TOTAL fields are calculated and entered by DataStar.

The cursor moves to the next QUANTITY field, again for sight verification. Assume that the number is correct and signal the end of entry.

PRESS **CTRL** **B**

Again DataStar made the necessary calculations and entered the results in the TOTAL COST, SALES TAX, and TOTAL fields.

To compute the Tax Rate, DataStar went to the Okstates.dta file (provided with your disk) and selected the tax rate that matched the State name in the BILL TO portion of your form.

Step 15 Attribute: Constant (Unconditional; Conditional)

Notice the position of the dollar signs ($), decimals, and commas.

The dollar signs have been defined to be an unconditional, floating constant.

The commas have been defined as a conditional constant and appear only if a character is on either side.

Step 16 Attribute: Auto-Increment

Look at the ORDER # field. DataStar has calculated (increasing the number by one each time a record is filed) and entered the ORDER #.

All data is now correct.

Step 17 Store the Data

As the prompt indicates:

PRESS **RETURN** (to store the data as a Customer Record)

A blank form is returned to your screen.

Step 18 Create More Records

You can use this Order form to get more practice at data entry. This practice can be especially helpful for data entry operators.

Enter as many records as you like. If an error message is presented, simply make the required change and continue data entry. If you do not understand an attribute requirement, you can always return to FormGen and look at the attributes that have been assigned to the Order form's fields.

Step 19 Look at Your Records

If you have created several records, you might want to practice retrieving those records. Follow these steps.

PRESS CTRL E (to exit the Add Mode)
Select either **D** (scan in data file order) or **I** (scan in index file order) from the Mode Selector Screen.

DataStar will begin to display the records. Use **CTRL N** to move through the file. When you finish looking at the records, go on to the next step.

Step 20 Finish

You have completed your study of the Order Form and its attributes. Leave the Order Form on your screen while you read the Chapter Summary. Then use the exit command below.

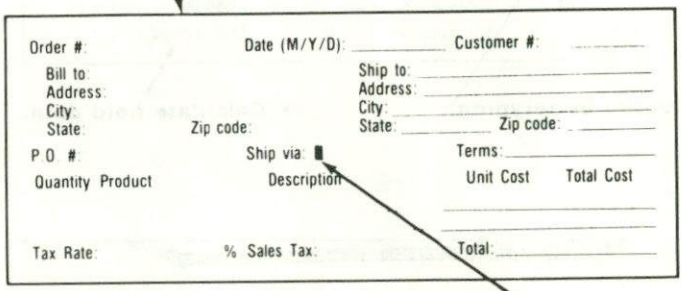
PRESS CTRL E E C
(to exit DataStar)

Chapter Three
Summary

First, scan the chapter to review all the new information boxes. Then read the information below.

In FormGen you...

- **Invoked the Order Form.**
- **Used CTRL W to print the form and the field attribute assignments.**



- **Reviewed the five page printout (p.00).**
- **Reviewed the field attribute assignments (on-screen) by positioning the cursor *in* a field, pressing CTRL R, reading each assignment, then pressing RETURN.**

Chained DataStar by pressing CTRL C D.

In DataStar you...

Used the Order Form's attributes to:

- **Cause DataStar to access a reference file and supply data for a field.**
- **Point out incorrect data.**

Order # 0000002 Date (M/Y/D) 11/05/81 Customer # 4577077

Bill to Business Systems
Address 1000 Fifth Street
City San Rafael
State CA Zip code 94903

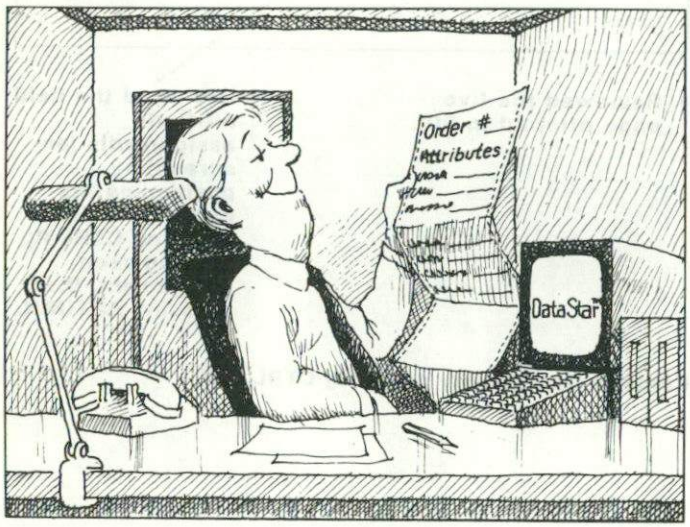
Ship to SAME
Address
City
State Zip code

P O # AR622 Ship via PP Terms NET 30

Quantity	Product	Description	Unit Cost	Total Cost
12	WS-8I	WordStar - 8" CP/M STD	495.00	5,940.00
44	DS-8I	DataStar - 8" CP/M STD	350.00	15,400.00

Tax Rate 6% Sales Tax 1280.40 Total 22,620.40

- **Verify by retyping.**
- **Calculate field data.**



ORDER FORM LISTING AND FIELD ATTRIBUTE DEFINITIONS

FIELD NUMBERS

Order #: 1 Date (M/D/Y): 2/3/4 Customer #: 5

Bill to: 6 Ship to: 11
Address: 7 Address: 12
City: 8 City: 13
State: 9 Zipcode: 10 State: 14 Zipcode: 15

P. O. #: 16 Ship via: 17 Terms: 18

Quantity	Product	Description	Unit Cost	Total Cost
19	20	21	22	23
24	25	26	27	28

Tax Rate: 29% Sales Tax: 30 Total: 31

ORDER FORM LISTING AND FIELD ATTRIBUTE DEFINITIONS

RANGE CHECK, LOW

Order #: _____ Date (M/D/Y): 01/01/__ Customer #: _____

Bill to: _____ Ship to: _____
Address: _____ Address: _____
City: _____ City: _____
State: __ Zipcode: _____ State: __ Zipcode: _____

P. O. #: _____ Ship via: _____ Terms: _____

Quantity	Product	Description	Unit Cost	Total Cost
___	_____	_____	_____	_____
___	_____	_____	_____	_____

Tax Rate: ___% Sales Tax: _____ Total: _____

RANGE CHECK, HIGH

Order #: _____ Date (M/D/Y): 12/31/__ Customer #: _____

Bill to: _____ Ship to: _____
Address: _____ Address: _____
City: _____ City: _____
State: __ Zipcode: _____ State: __ Zipcode: _____

P. O. #: _____ Ship via: _____ Terms: _____

Quantity	Product	Description	Unit Cost	Total Cost
___	_____	_____	_____	_____
___	_____	_____	_____	_____

Tax Rate: ___% Sales Tax: _____ Total: _____

ORDER FORM LISTING AND FIELD ATTRIBUTE DEFINITIONS

ENTRY CONTROL MASK

Order #: _____ Date (M/D/Y): __/__/"X Customer #: _____

Bill to: _____ Ship to: _____
Address: _____ Address: _____
City: _____ City: _____
State: __ Zipcode: ____ State: __ Zipcode: ____

P. O. #: _____ Ship via: _____ Terms: _____

Quantity	Product	Description	Unit Cost	Total Cost
___	__/__	_____	_____	____' ____
___	__/__	_____	_____	____' ____

Tax Rate: __% Sales Tax: ____' ____ Total: ____' ____

CONTENT CONTROL MASK

Order #: 9999999 Date (M/D/Y): 99/99/89 Customer #: 9999999

Bill to: _____ Ship to: Cddddddddddddddddddd
Address: _____ Address: _____
City: _____ City: Cddddddddddddddddddd
State: __ Zipcode: ____ State: CC Zipcode: 99999

P. O. #: HHHHHHHHHHH Ship via: DDDDDDDDDDD Terms: HHHHHHHHHHH

Quantity	Product	Description	Unit Cost	Total Cost
999	CC-GC	_____	___.__	___,___.__
999	CC-GC	_____	___.__	___,___.__

Tax Rate: __.__% Sales Tax: ___,___.__ Total: ___,___.__

ORDER FORM LISTING AND FIELD ATTRIBUTE DEFINITIONS

FIELD ATTRIBUTE DEFINITIONS

Q=required
C=check dgt
J=right just
W=write ed c
O=oper entry
R=range chk
E=edit mask

FLD	LEN	LIN	COL	KEY	PAD/ FLOAT	* * D E R I V E D * * LIST INDEX	ITEM FIELD	CALC NUM	******VERIFICATION**** ORDER	LIST VERIFY FILE NAME
001/ORDER NUMBER										
	007	000	009	001	JWO E P0			001 N		
002/MONTH										
	002	000	036		Q JW RE P0					
003/DAY										
	002	000	039		Q RE					
004/YEAR										
	002	000	042		Q W E					
005/CUSTOMER NUMBER										
	007	000	063		Q J E				L 002	CUSTOMER

```
006/BILL NAME
    020 002 012   .       .       . 005  001      .
007/BILL ADDRESS
    020 003 012   .       .       . 005  002      .
008/BILL CITY
    020 004 012   .       .       . 005  003      .
009/BILL STATE
    002 005 012   .       .       . 005  004      . L 003    OKSTATES
010/BILL ZIPCODE
    005 005 027   .       .       . 005  005      .
011/SHIP NAME
    020 002 047   . Q     E .     .               .
012/SHIP ADDRESS
    020 003 047   .       .       .               .
013/SHIP CITY
    020 004 047   .       E .     .               .
014/SHIP STATE
    002 005 047   .       E .     .               . L 004    OKSTATES
015/SHIP ZIPCODE
    005 005 062   .       E .     .               .
016/P O NUMBER
    012 007 009   . Q      .      .               . R 005
017/SHIP VIA
    012 007 034   . Q     E .     .               .
018/TERMS
    011 007 059   . Q     E .     .               .
019/QUANTITY 1
    003 011 002   . Q J   E .     .               . S 006
020/PRODUCT 1
    005 011 013   . Q W   E .     .               . L 007    PRODUCTS
021/DESCRIPTION 1
    025 011 022   .       .       . 020  002      .
022/UNIT COST 1
    007 011 050   .  J    E . P F$ . 020  003      .
023/TOTAL COST 1
    011 011 059   .  J    E . P F$ .       008 N .
024/QUANTITY 2
    003 012 002   .  J    E .     .               . S 009
025/PRODUCT 2
    005 012 013   .   W   E .     .               . L 010    PRODUCTS
026/DESCRIPTION 2
    025 012 022   .       .       . 025  002      .
027/UNIT COST 2
    007 012 050   .  J    E . P F$ . 025  003      .
028/TOTAL COST 2
    011 012 059   .  J    E . P F$ .       011 N .
029/TAX RATE
    003 014 017   .       E .     . 009  002      .
030/SALES TAX
    009 014 036   .       E .     .           012 N .
031/TOTAL
    011 014 059   .  J    E . P F$ .           013 N .
```

ORDER FORM LISTING AND FIELD ATTRIBUTE DEFINITIONS

CALCULATIONS

```
#001=ORDER NUMBER+1
#023=QUANTITY 1*UNIT COST 1
#028=QUANTITY 2*UNIT COST 2
#030=TAX RATE*(TOTAL COST 1+TOTAL COST 2)/100
#031=TOTAL COST 1+TOTAL COST 2+SALES TAX
```

FILE NAME: CUSTOMER.DTA

PURPOSE: Contains customer information

NOTE: This is the file as distributed. It may contain additional data through use of the demonstration.)

```
Automated Products,23467 Hollywood Blvd,Los Angeles,CA,90039,1111111
Business Electronics,1700 Fifth Ave.,New York City,NY,10011,2222222
Computer Devices,1455 Van Ness,San Francisco,CA,94926,3333333
The Computer Center,1555 Fifth Avenue,New York,NY,10017,4444444
Electronic Ecstasy,3218 Collins Ave.,Miami, FL,33139,5555555
Futuristic Funthings,Five-fifty 55th St.,Fresno,CA,93706,6666666
Global Gizmos,36477 N. W. First St,Portland,OR,97231,7777777
Herb's Computer Co.,1980 Main Street,Scarsdale,NY,10583,8888888
Integrated Systems,9000 Main Street,Dallas,TX,75207,9999999
```

FILE NAME: PRODUCTS.DTA

PURPOSE: Contains some MicroPro product codes and information

(THE FIRST FIVE CHARACTERS DESIGNATE THE PRODUCT CODE.)

```
DS-5D,  "DataStar - 5" " Dynabyte",350.00
DS-5H,  "DataStar - 5" " Heath",350.00
DS-5M,  "DataStar - 5" " Micropolis",350.00
DS-5N,  "DataStar - 5" " North Star",350.00
DS-8I,  "DataStar - 8" " CP/M STD",350.00
DS-RM,  DataStar Reference Manual,60.00
MM-5D,  "MailMerge - 5" " Dynabyte",150.00
MM-5H,  "MailMerge - 5" " Heath",150.00
MM-5M,  "MailMerge - 5" " Micropolis",150.00
MM-5N,  "MailMerge - 5" " North Star",150.00
MM-8I,  "MailMerge - 8" " CP/M STD",150.00
MM-RM,  MailMerge Reference Man.,20.00
WS-5D,  "WordStar - 5" " Dynabyte",495.00
WS-5H,  "WordStar - 5" " Heath",495.00
WS-5M,  "WordStar - 5" " Micropolis",495.00
WS-5N,  "WordStar - 5" " North Star",495.00
WS-8I,  "WordStar - 8" " CP/M STD",495.00
WS-RM,  WordStar Reference Manual,60.00
```

FILE NAME: OKSTATES.DTA

PURPOSE: Contains "legal" postal state abbreviations and tax rate information.

```
AK,0.0
AL,6.0
AR,3.0
AZ,5.0
CA,6.0
CO,6.5
CT,7.5
DC,8.0
DE,0.0
FL,4.0
GA,4.0
HI,4.0
IA,3.0
ID,3.0
IL,6.0
IN,4.0
KS,3.0
KY,4.0
LA,5.0
MA,5.0
MD,5.0
ME,5.0
MI,4.0
MN,5.0
MO,4.0
MS,5.0
MT,0.0
NC,4.0
ND,3.0
NE,4.5
NH,0.0
NJ,5.0
NM,4.0
NV,3.5
NY,4.0
OH,4.0
OK,4.0
OR,0.0
PA,6.0
RI,6.0
SC,4.0
SD,5.0
TN,4.5
TX,5.0
UT,4.5
VA,4.0
VT,3.0
WA,5.3
WI,4.0
WV,3.0
WY,3.0
```

NOTES

Chapter Four
Advanced DataStar

Section A:
Designing a Usable Form

This chapter contains all the information you will need to create an original form, to store records, and to retrieve or print those records. Specific definitions of terms and procedures that have been introduced in previous chapters are not repeated in this chapter, although a page number is provided for reference. If this is your first experience with DataStar, you may need to complete at least Chapters One and Two before continuing.

ONLY FORM DESIGNERS
NEED TO COMPLETE THIS CHAPTER!

Throughout this section we will refer to the form you are creating. Since DataStar can be used for a wide range of data handling activities, the word "form" could refer to applications such as lists, directories, catalogs, etc. (see Appendix C).

Step 1 Decide What Form To Use

Because your data handling needs are unique, you are best able to design a form that will handle your data entry jobs. However, to begin thinking about form design, look at the sample forms provided in Appendix C.

Once you have an idea for a form, sketch the form on paper or experiment with the design right on your screen. For design considerations, go on to the next step.

If you don't have an original form idea, you can see the PreferredCustomer Form shown in this chapter.

How much screen space is available for my form?

Default (i.e., normal) form size is 79 columns wide by 17 lines long. It is possible to create larger forms, up to 255 characters wide and 255 lines long, by adding columns and lines to the default form size (using CTRL B and CTRL N). However, smaller forms are loaded faster (during data entry), take up less memory, and avoid unnecessary lines. For details on this procedure, turn to page 1-11 of the DataStar User's Guide 1.1.

WINDOW POSITIONING
The CRT screen can be used as a movable window to view forms that are larger than the default size. Once a larger form has been created, the screen display automatically follows the cursor around the larger form. Successive CTRL F's or CTRL D's will move the cursor and the display to the right boundaries of a form. Successive CTRL X's will bring up the additional lines on the bottom of a form.

What is the best layout for my form?

The placement of data fields on your form deserves careful attention. Consider these factors:

1. The most important information should be placed near the top (easy to see).

2. Calculated fields often need to follow a sequence. While DataStar can supply calculations anywhere on the form, the form's readability may depend on a particular order.

3. File accessed fields may require a special order. This is an attribute assignment that requires special reference files (see Appendix A).

4. Avoid crowding information on the form. Cluttered forms are difficult to use.

```
                                                    Fourth Quarter 1981
Preferred Customer List              Amount Purchased      Order Code
Customer # _______
Name: ____________________           ________    9/81      _____
Address:_____________________        ________    10/81     _____
City: _________State:___             ________    11/81     _____
Zip code:_____ Phone:________        ________    12/81     _____
Total Fourth Quarter $_______
```

Poor Design

```
                    Preferred Customer List
                    Fourth Quarter 1981
                                    Amount Purchased    Order Code
Customer # _______
Name:    ____________________       9/81 ________       _____
Address: ____________________       10/81 ________      _____
City:    _____________State: __     11/81 ________      _____
Zip code: _____Phone: ________      12/81 ________      _____
                          Total Fourth Quarter $_______
```

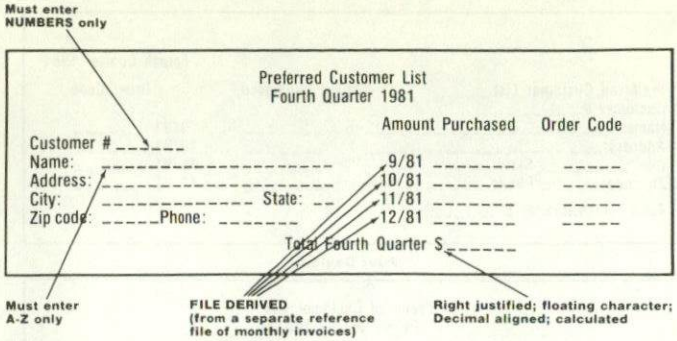
Good Design

How large does each field need to be?

Although you can lengthen the size of all but the Key field later on, it is not advisable to shorten field size once your form has been used for data entry. (You'll get an error message.) *The size of a Key field CANNOT be adjusted after the form has been used for data entry.* To do so would change the arrangement of information in the index file and require re-entering records. Be careful to count out the number of spaces you need for each field. For example, a calculated field must be large enough to hold the largest calculation.

What special characteristics can I give my data fields?

Although the following characteristics are not assigned to your data fields until the form layout is complete (field definition phase), you should know about them as you design your form.



Attributes You Can Assign

Three types of fields: entered, derived, combination.
Three alignments: left or right justified, decimal aligned.
Constant characters: pad, floating, auto-duplicated.

Step 3 Make a Work Disk for Your Files

Because you are about to create new files that will, no doubt, contain many records, it is advisable to establish these files on a separate (work) disk.

Check your system manual for the correct procedure. If your system has two drives, creating a work disk may simply mean inserting a blank (formatted) disk in Drive B (for your files) and keeping the DataStar program disk in Drive A.

When you need to refer to your files hereafter, you will type the letter of the drive in which they are located before the filename.

Example:

FormGen B:Junk

REMEMBER

To protect your files:

- Do status checks frequently; always do a status check before you begin a new form to see if there is sufficient space on your disk.
- Keep large files on separate disks.
- Make backup copies of your files.
- SAVE your work frequently when you're creating a form.
- Once the final form design has been completed and that form *has been used for data entry*, you can protect your form further by using STAT to assign it the Read/Only characteristic (CP/M 2.2 or MP/M only):

  STAT formname $R/O

  Until the form has been restored to the Read/Write condition, it is protected against accidental erasure or alteration.

Step 4 Invoke FormGen

After you've sketched out your form, decided on a name (1-8 characters), and created a work disk, you are ready to begin typing.

At your system prompt, invoke FormGen.

TYPE **FormGen**

The copyright will be displayed and then this prompt:

Enter name of form definition file or press RETURN

TYPE the **name of your form**

PRESS [RETURN]

For new forms, DataStar will take you first to FormGen Help Screen 4. If you have not done so before, read Help Screen 4. Next, rotate and review all the Help Screens, stopping at Screen 2.

PRESS [CTRL] [J]

Step 5 Type Your Form

With the sketch of your form in front of you, begin typing by using the cursor commands listed on Help Screen 2.

Remember, a form's background text is typed and CTRL Q or the underline key is used to create data fields.

Use CTRL Z to delete an entire field.

The Status Line keeps track of important information for you as you type (see page 3-4).

MOVING LINES AROUND ON YOUR FORM

There is a technique for moving entire lines around on your form. The last line on every form is reserved as a BUFFER LINE, a line that will hold the contents of one full line until you can move it to a new area.

Here's how you move lines. Position the cursor on the line you want to move.

PRESS [CTRL] [P]

That line will now be copied to the last line of your form.

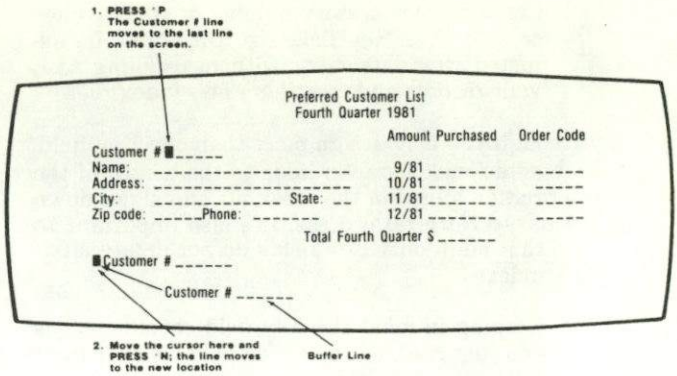
Now move the cursor to the new location where you want to insert the line.

PRESS [CTRL] [N]

A copy of the line is now inserted into your form in front of the line where you placed the cursor.

When you have finished using the buffer line, you must delete the information from the last line on your form.

PRESS [CTRL] [Y] (to delete the last line on your form)



Step 6 Assign a Key Field

When you finish typing, read the information below.

NEW INFO

KEY FIELDS

Before a form can be stored in the FormGen file (form definition file), at least one field must be designated a **KEY** field. The purpose of a Key field is to provide quick access to individual records in the following way. When you enter data on your form (later on in DataStar), the entire record is stored in the data (.dta) file and a copy of the Key field plus a pointer (that points to the full record in the datafile) is stored in the index (.ndx) file. The index file allows DataStar to access specific records quickly by scanning Key field data rather than entire records.

Because the Key field is used for quick record retrieval, your Key field should meet these requirements:

1. Contain unique information (unlike name fields which may have duplicates).

2. Contain no more than 120 characters.

3. Contain the necessary number of spaces when created. The Key field size CANNOT be adjusted after data entry (without recalling ALL your records and creating a new index file).

Although you may assign more than one Key field, each additional character adds to the length of the information stored in the index file and slows down the record retrieval process. It's also important to note that additional Key fields do not create alternate indexes.

Keeping in mind the Key field considerations you just read, decide which field on your form will be the Key field.

Then move the cursor INTO that field.

PRESS CTRL K

The field will fill with asterisks as shown in the illustration below.

```
Customer#_____
Customer# ******
```

Step 7 Assign Highlighting

You can highlight areas of your form by using CTRL O to set the highlight and CTRL L to delete it (if highlighting has been installed for your terminal). For specifics on DataStar highlighting capabilities, turn to the User's Guide 1.1, page 1-10.

Step 8 Save Your Form

When you have checked over your form to make sure the arrangement of data fields and background text is correct, you are ready to store the form.

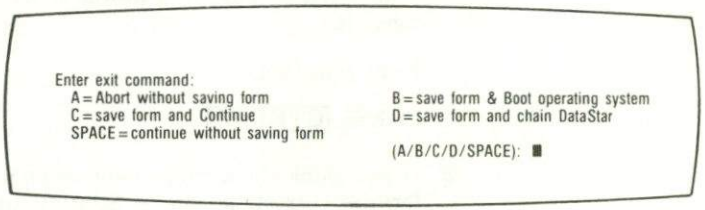
PRESS CTRL C

Once you have signaled that the form is finished, several things may or may not occur, depending on the condition of your form. Review these possibilities:

1. If there are no errors on your form, the Enter Exit command prompt will be displayed (see illustration below). At this point you could:

   PRESS [B] (to save the form and boot the system; then take a break)

   PRESS [C] (to save the form and continue)


Enter exit command:
A = Abort without saving form
C = save form and Continue
SPACE = continue without saving form
B = save form & Boot operating system
D = save form and chain DataStar
(A/B/C/D/SPACE): ■

2. If there are error conditions in your form, FormGen will display a list of the errors. A complete list of possible FormGen Error Messages is included in Appendix B.

   However, the only two error messages that could occur at this point are:

   No Key field has been established.
   Key field longer than 120 characters.

If either of these messages is displayed after you've pressed CTRL C:

PRESS the [SPACE BAR] (to restore your form to the screen)

Make the necessary corrections.

PRESS [CTRL][C][C]

Step 9 Edit Your Form

You can edit and rearrange your form as many times as you like before data has been entered on the form in DataStar.

At this point your alternatives are:

1. Edit the form, and then use the save and continue command (CTRL CC) a second time. The new version of the form will be stored in the FormGen file, and the first version will become a backup file. Use this save command frequently to guard against losing your work because of a power shortage, etc.

2. Print your form.

   PRESS CTRL W

3. If you think the arrangement of your form is correct, go on to Step 10 to assign attributes.

4. Exit FormGen.

   PRESS CTRL C B

Step 10 Assign Attributes

If you exited FormGen after the last step, use the following command at the system prompt to bring up your form.

TYPE **FormGen and the name of your form**

ATTRIBUTES
Attributes are characteristics that you can assign to your data fields when you create the form. In general, they can do three things for a data field:

1. protect against incorrect data entry;
2. provide the data for a field (e.g., file derived, calculated);
3. provide format conditions.

Attributes are stored with the form in the FormGen (form definition) file. The attributes, or instructions for controlling the operation of the data field, are interpreted and executed by DataStar during data entry.

Attributes are defined on page 2-3 of this Guide. The assignment procedure is covered in Chapter Two, Section A.

Look at the list of attributes in Appendix A. You can assign as many (or no) attributes as you like to any field. However, unnecessary assignments will slow down data entry processing. Also, since some attributes are interdependent, it's important to become familiar with the information in Chapters Two and Three before you begin making assignments.

DataStar 1.4 has two new attributes that may be helpful to use on your form: Field Names and Intermediate Fields. Any field on your form may be assigned a field name for easy reference. Intermediate Fields can be assigned to hold temporary data, i.e., calculations. This data is not stored in the file. Check the addendum to your DataStar Reference Manual for more information on these new attributes.

Consider the first field on your form. Which attributes would best serve the kind of data that will be entered there? If the first field is a Name field, you may want to assign the Required Attribute (as the name may be critical) and, under the Edit Mask, the "A-Z letters only" Attribute.

The File Access Attribute may require some further reading. See pp. 2-14 — 2-16 and Appendix A in DataStar User's Guide 1.1.

After you have decided which attributes you will assign, position the cursor *IN* the data field and enter the following command to begin the attribute list.

PRESS CTRL R

Notice that Help Screen R is displayed, and the attribute list begins. For more details on this procedure, read page 2-4 in this Guide.

For each query on the attribute list you may:

1. PRESS RETURN if you want to keep the default answer.
2. Choose the attribute by typing the called for response.
3. PRESS CTRL E to retrace your steps.
4. PRESS CTRL C to end the list and restore your form.
5. PRESS CTRL J for more explanation.

Continue through the list, assigning or reading the attributes until the list is finished and your form returns to the screen.

If you want to assign attributes to other fields, simply move your cursor into the field and repeat this step.

Remember, when assigning the Edit Mask Attributes, you must make the assignment to each character in the data field. For example, if you want to assign the Numbers Only Content Control to an entire field, it would look like this:

Customer #: 999999

Step 11 Store Your Form and Its Attributes

When you have finished your attribute assignments (field definition phase), you will need to store the attributes in the FormGen file.

PRESS CTRL C

When an edited version of a form is stored, FormGen automatically renames the old version of the form "filename.bak" before writing the current version to the disk.

After entering the form done command, the Enter Exit command prompt will appear, and then one of two things will happen:

1. If your form does not meet FormGen's requirements (contains error conditions), FormGen will list these errors on the screen. Appendix B lists these errors and how to fix them. All errors must be corrected before FormGen will accept your form. You can also get a printout of the errors by pressing L. (Be sure your printer is ready.)

   Next, PRESS **C** to return to your form and correct all errors. When you've finished, use the form done command, **CTRL C**, a second time.

2. If your form doesn't have any errors. FormGen will display the Enter Exit command prompt. Next, choose from these alternatives.

   - Press **C** to return to your form and recheck the field attribute assignments. You may change the assignments until data is entered on your form in DataStar.
   - PRESS **D** to save your form and proceed to DataStar. Then continue on to Section B.
   - PRESS **B** to save your form and exit FormGen.

Chapter Four
Advanced DataStar

Section B: Data Entry

Step 1 **Get Organized**

Gather the lists, office records, or customer files that you want to enter on your form in DataStar.

Step 2 **Chain DataStar**

If you are continuing from Section A and have your form on the screen, use the following command to save your form and proceed to DataStar:

PRESS CTRL C D

If you exited FormGen after the last section, type the following command at your system prompt:

TYPE **DataStar** plus the **name of your form**

If a form has been used previously for data entry, that form will have corresponding data (.dta) and index (.ndx) files established in DataStar. Since this is a new form, DataStar checks for those files, finds none, and then presents this prompt:

Enter disk drive to use for the data file filename.dta (A/B...)
Enter disk drive to use for the index file filename.ndx (A/B...)

Establish your new files on the separate drive you are using for your work disk.

TYPE **the letter that specifies the disk drive for your files**

The second prompt is displayed.

TYPE **the same letter for the index files**

PRESS **RETURN**

After you have selected which drive you want to use for your files, your form will go through the DataStar default process for new forms and arrive in the Add Mode, ready for data entry. For more information on the Add Mode, check page 1-9 of this Guide.

Remember, in DataStar CTRL J (toggle on/off) will delete the Help Screen and provide maximum screen space for your form. You can also get additional help (e.g., an explanation of the Add Mode) by pressing CTRL E to exit the mode, then J for additional help, then the letter of the mode you want defined (in this case A). To return to Add Mode, after you have read the message, press any key and then type A.

Step 3 Enter Data

Review the new cursor commands listed on the Add Mode Help Screen.

Your cursor will be positioned in the first data field (unless you have assigned an attribute that makes it skip a field), ready for you to begin entering data.

- In DataStar the cursor will move only in the data fields. When a field is full, the cursor automatically moves to the next field.
- Once you have begun to store records on this form, you cannot shorten the size of the Key field(s).
- If you've assigned the Calculate or File Derived Attributes, your cursor will not enter those fields (unless you assigned the Allow Operator Entry Attribute).

Enter data on your form. When all required fields are completed, end entry processing will begin automatically if the last field is full; otherwise, use the end entry command.

PRESS CTRL B

DataStar will then do one of the following:

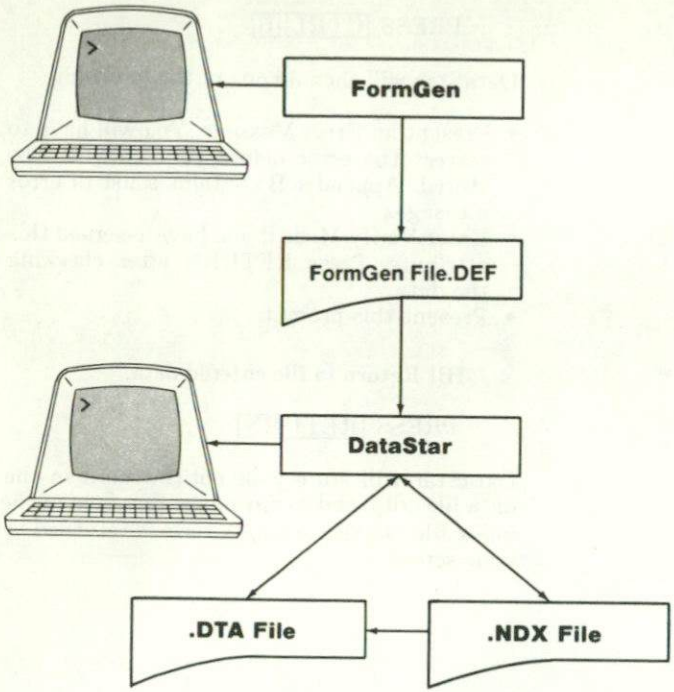
- Present an Error Message. You will have to correct the error before your data can be stored. Appendix B contains a list of error messages.
- Enter Verify Mode if you have assigned this attribute. Press RETURN after checking the data.
- Present this prompt:

Hit Return to file entered data.

PRESS RETURN

DataStar will store your entire record in the data file (.dta) and a copy of the Key field in the index file (.ndx). An empty form is returned to your screen.

The following illustration shows the data flow for the entire DataStar system, from FormGen to DataStar's data and index files.



Data Flow in the DataStar System

Step 4 Create More Records

Repeat Step 3 until you have several records stored in the data file.

Step 5 Retrieve All Your Records

After you have stored at least three records, you can practice retrieving those records from the data file.

To have a look at all records in your file:

PRESS CTRL E (to change modes)

SELECT D (scans records in data file order)

DataStar will go to the data file (which contains all your records in the order they were entered) and display each record, one at a time.

The last record you entered will appear on your screen.

PRESS CTRL N (to see the next record)

PRESS CTRL P (to go backwards)

When DataStar comes to the end of the file, an end of file message is displayed:

End of file.
Hit ESC key to continue scan:

PRESS ESC

Records may be modified, deleted, or printed when they are retrieved through any of the Scan Modes. There will be more information about this procedure in Steps 9 and 10.

Go on to the next step after you've seen all your records.

Step 6 Retrieve a Specific Record

DataStar's select by Key Mode provides rapid access to specific records. To use this mode:

PRESS CTRL E (to leave the current mode)
SELECT K (from the Mode Selector List)

A blank form is displayed and the cursor is positioned in the field you assigned as the Key field.

TYPE in the exact (Key field) information that you had used before on one of your customer records.

If you designated more than one Key field, you must type the correct data in all those fields. (The cursor will not move into non-Key fields). You may have to use the end of entry command (CTRL B) or RETURN if the information does not fill the field.

There's the record!

HOW THE SELECT BY KEY MODE WORKS

When you enter Key field information, DataStar searches the index file (the index file contains copies of Key field data) to find a matching Key field value. If a matching value is found, DataStar then goes to the data file, retrieves the record with the identical Key field, and displays it.

The Key field can also be used to set the current record for scanning in Index Mode. For example, if you have records with Key field values of 0-200 and you want to locate all records in the 50's, you can use the Select by Key Mode to locate the record with a Key field value of 50. Then use the CTRL EI command to change to Index Scan and the pointer will be located at the next record, Key field value 51.

Step 7 Retrieve Groups of Records

The Scan Mask provides a method for retrieving groups of records that have matching data in a specific field(s) or portion of a field or fields (e.g., all customers who purchased merchandise in June). To use the mask:

PRESS CTRL E (to change modes)

When the Mode Selector List is displayed:

SELECT **M**

Then read the new information following.

HOW THE SCAN MASK WORKS

When you begin to work with the Scan Mask, your form is displayed with asterisks in every field. The asterisks indicate that the mask can be edited in any field to allow specific information from your records to filter through.

Preferred Customer List
Fourth Quarter 1981

		Amount Purchased	Order Code
Customer #******			
Name: **********		9/81 *******	*****
Address: **********		10/81 *******	*****
City: L.A.	State: **	11/81 *******	*****
Zip code: *****	Phone: *******	12/81 *******	*****
		Total Fourth Quarter $******	

DataStar will display all preferred customer records from L.A.

Once you have selected and typed in data that is present in some records and not in others, DataStar will then switch to either the Index or Data Scan Modes and retrieve all records that fit the mask. For more information, check pp. 4-8 in the DataStar User's Guide 1.1. The following steps will guide you through this process.

PRESS CTRL A or CTRL F (to move the cursor into the field you want to edit)

Then type in appropriate data.

PRESS CTRL B (for the end of entry command)

DataStar will switch to the current scan mode, either Data or Index, and display the first matching record. If no records match exactly, a "No Match" prompt will be displayed.

PRESS CTRL N (to see the next record), or
PRESS CTRL P (to see the previous one)

When the end of file message is displayed:

PRESS [ESC]

Look at your records one more time to make sure you've seen all of them.

After you've seen your records, the Scan Mask needs to be cleared for later use.

PRESS [CTRL][E] (to change modes)

SELECT M (to return to the mask)

Move the cursor into the field(s) that you previously edited and

PRESS [DEL] or [CTRL][G] (to remove the information and return the asterisks to the field)

Step 8 Modify and Delete Records

You can modify or delete any record that you have retrieved through the Scan or Select by Key Modes. For this example we will use the Index Scan Mode.

PRESS [CTRL][E][I] (enter the Index Scan Mode)

Rotate your records until you find one you want to modify. Use the edit commands listed on the Help Screen to change the data on the record. When finished:

PRESS [CTRL][B] (for end of entry)

If you have assigned the Verify Attribute, Verify Mode will be invoked. After you've verified the data:

PRESS [RETURN]

A screen message will come up about storing the updated data.

PRESS [RETURN] (to store the updated record)

You can also delete a record while in one of the Scan Modes. Invoke the Index Scan Mode, as you did above. When the record you want to delete is displayed on your screen:

PRESS [CTRL] [B] (to signal end of entry)

This prompt is displayed:

Hit RETURN to go to next form, RUB (delete) to remove data from file, or control E to exit the current mode.

Pressing DEL or RUB removes the record from the Scanning Modes. However, the old record is still taking up space within the main file and will not be totally disposed of UNTIL FILE MAINTENANCE IS PERFORMED. See Chapter Five, Section B.

Step 9 Print Records

You can print your records while in several different modes. Read the following new information before attempting to print:

PRINTING
You can print your records while using either of the Scan Modes, the Select by Key Mode, or the Add Mode (the current on-screen record is printed). Remember these points:

- If the Scan Mask has been altered, only those records that fit the Scan Mask will be printed in either the Data or Index Scan Modes. Clear the mask and then all the records in your file will be printed.
- Printing starts at the current record in the file.
- CTRL U prints the form and the data.
  CTRL O is used for printing the data onto a preprinted form.

The following steps will guide you through a printing process:

Invoke one of the Scan Modes.

PRESS [D] or [I]

PRESS [CTRL] [U]

All the records in your file will be printed unless the Scan Mask has been altered. When the "end of file" message is displayed:

PRESS [ESC]

The printing will then continue.

Pressing any key will stop the printing of records.

Step 10 Exit DataStar

PRESS [CTRL][E][E][C]

Step 11 Print Files Through The Operating System

There is another way to review and print the contents of your data and index files.
To see the contents of your datafile, at your system prompt:

TYPE **Type filename .dta**

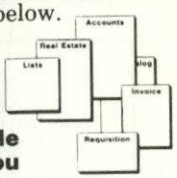
All the records in your data file will be listed on the screen (records longer than the screen will be cut off at the end of each line). *Records that have been marked for deletion will still be listed, but the first character will be removed.* Check your system manual to find out the correct command for printing all your records at the same time.

This is the end of Chapter Four. Turn the page to review the chapter summary.

Chapter Four

Summary

Scan the chapter to review all the new information set off with this symbol NEW INFO . Then read the information below.



Before designing your form you...

Considered the kind of form that would handle your data entry jobs and the kind of layout you needed.

Created a work disk for your files and invoked FormGen.

In FormGen you...

- **Typed your form.**

- **Stored intermediate copies of the form in the FormGen file (CTRL CC).**

```
                    Preferred Customer List
                    Fourth Quarter 1981

                                        Amount Purchased    Order Code
Customer # ______
Name:    ____________________          9/81 _______        _____
Address: ____________________          10/81 _______       _____
City:    _____________State: __        11/81 _______       _____
Zip code: _____Phone: _______          12/81 _______       _____
                          Total Fourth Quarter $ ______
```

- **Assigned optional attributes. These are then stored with the form in the FormGen file.**

Proceeded to DataStar by pressing CTRL C D.

In DataStar you...

- **Entered data that fit the attribute requirement that you assigned in FormGen.**
- **Stored the entire record in the data file and a copy of the Key field in the index file.**

Preferred Customer List
Fourth Quarter 1981

Customer # 111111		Amount Purchased	Order Code
Name	Carl Smith	9/81 $350	DS-5D
Address	20 Baltimore Ave	10/81 $150	MM-5D
City	Los Angeles State CA	11/81 $495	WS-5D
Zip code	97272 Phone 7772121	12/81 $295	CS-5D

Total Fourth Quarter $1290

- **Retrieved records through these modes:**
  - **Data Scan Mode**
  - **Select by Key Mode**
- **Retrieved records by editing the Scan Mask to select a subset of records.**

Learned how to modify, delete, and print records.

For more review of the entire DataStar process, review the DataStar User's Map, p. D-7

Chapter Five

Summary of Batch Files and File Maintenance Procedures

Section A: Batch Files

WHAT IS A BATCH FILE?
A Batch File is a group of records that have been entered but have not yet been verified and added to the main data file. Batch processing allows data to be entered by more than one operator and to be verified later by another operator.

Step 1 Start a Batch File

For this chapter we will assume you already have a form for your customer records and that you know how to enter and retrieve records. (If you don't, review Chapter One before continuing.) The following steps will simply outline the procedure for Batch file processing.

Once you have created a form, proceed to DataStar. Note: If you want to review each record as that record is verified later on in Batch Verify, make sure that at least one field on your form contains the Sight Verify Attribute.

If your form is a new one, DataStar will present a prompt asking where your files are to be stored. Enter the correct disk drive. DataStar will take your form directly to the Add Mode.

PRESS CTRL E (to change modes)

SELECT **B** (for Batch files)

If your form is NOT new, simply:

SELECT **B**

Note: You will not be able to work with Batch files if a Batch.ovr file (or Batch.com in earlier versions of DataStar) is not present on your logged disk drive. If Batch.ovr is not there, copy it from the DataStar program disk, using the copying utility of your operating system (the PIP program in CP/M systems).

Step 2 Enter Batch Add Mode

Review the illustration below:

```
ADD MODE     /BATCH A: filename      current form = EXAMPLE
CURSOR:      ^A = prev field   ^S = left char   ^D = right char   ^F = next field
             ^T = first field  ^L = last field
FIELD EDIT:  ^G = delete char  ^V = insert hole  ^C = copy from previous record
OTHER:       ^Z = restore screen ^U = print form  ^O = print data  ^J = help on/off
END/EXIT:    ^B = end entry    ^E = exit current mode
```

If your Batch .ovr file is present, you will enter the Batch Add Mode, and two prompts will be displayed:

Enter disk drive (A,B...)
Enter name of batch file_____

The disk drive for your Batch file may be different from or the same as your regular files. You cannot assign a name to your Batch file that you have already assigned (or intend to assign) to your main file. (The form name is now listed on the top right portion of your Status Line.)

TYPE the **disk drive**

TYPE the **file name**

PRESS **RETURN** (if Batch file name is less than 8 characters)

BATCH ADD MODE HELP SCREEN

Once you have replied to the prompts, the Status Line will list both your batch file name and your form name.

Add Mode functions as usual. Enter your data on your form. When data entry is complete, use the following commands to store records in the batch file (not in the main data and index files).

PRESS CTRL B (for end of entry)

PRESS RETURN (to store the record)

When all records have been entered:

PRESS CTRL E (to get to the Mode Selector List)

Once you've added records to a batch file, you must perform this next step to tell DataStar that the batch file will be added to the main file after verification.

PRESS R

DataStar will then take you to Add Mode. Use the following command to exit DataStar.

PRESS CTRL E E C

Your Batch file will not be verified, calculations will not be performed, nor will these records be merged into the main file until you have completed batch verification.

Step 3 Verify Batch Files

Once you have entered all your records in the batch file you can verify them or exit DataStar and verify them later. THESE RECORDS WILL NOT BE ENTERED INTO A REGULAR DATA AND INDEX FILE UNTIL THEY HAVE BEEN BATCH VERIFIED.

To verify the Batch file, invoke DataStar with the main file name (if you're not already in DataStar), and use the following procedures.

(If there are no records in the main file, DataStar will go directly to Add Mode, and you must TYPE CTRL E V.)

SELECT V (for Batch Verify)

The Batch Verify help screen will be displayed with these prompts:

Enter disk drive for batch files (A,B...)
Enter name of batch file_____

If you continued in DataStar to this point without exiting, DataStar will remember your batch name and drive. All you need to do is PRESS CTRL B to accept the name shown. However, if you exited DataStar after entering your batch file of records:

TYPE the **disk drive that holds your batch file**

TYPE the **name of the batch file**

PRESS **RETURN**

If you select a batch file that doesn't exist, DataStar will create a new batch file and invoke the Batch Add Mode.

If the Batch file is found, the Verify Help Screen will be displayed along with the Batch file name and the current form name.

If any verification attributes have been assigned to any field, your first record will be displayed on the screen, and the cursor will be positioned in the first field that needs verification. When verification has been completed for a given record, the record is inserted into the main data and index files.

If no verification attributes have been assigned to any of the fields on the form, DataStar will complete verification automatically and then flash this message:

The batch file has been verified
Hit ESC key to enter another batch name

PRESS [ESC]

Your entire Batch file has now been entered in the main data and index files. Exit DataStar.

PRESS [CTRL][E][E][C]

Chapter Five

Summary of Batch Files and File Maintenance Procedures

Section B: File Maintenance

File maintenance should be performed for the following reasons:

- To reorganize the index file so that all record entry and retrieval will be faster.
- To reclaim dead space on your disk. (Deleted records and the old version of modified records are not actually removed from the disk until file maintenance is performed.)
- To reduce wear on your disk (by maintaining records properly).

Again, this section does not provide details for complete DataStar use. The steps below simply outline the file maintenance procedure. You will need to review Chapter One before using this procedure.

Step 1 Invoke DataStar

Since this procedure can only be used on existing files, you can invoke DataStar at your system prompt.

TYPE **DataStar file name**

Step 2 Select File Maintenance Mode

At the Mode Selector Screen, select File Maintenance.

PRESS F

Step 3 Tell DataStar Where the Files Are

This prompt will be displayed:

Enter disk drive (A/B...)
Enter name of batch file_____

The first prompt asks which drive to use for temporary files. In the second prompt a Batch file (in this case) means, "enter the name of a temporary file that DataStar can use for file maintenance." Why not use the file name "Junk"?

TYPE **the correct disk drive**

TYPE **Junk** (for name of batch file)

PRESS RETURN

Step 4 Begin File Processing

Your records will be flashed on the screen as DataStar processes them.

IMPORTANT:

- You can abort File Maintenance at any time.

  PRESS CTRL E

- You also have the option of *not* displaying your records on the screen as File Maintenance is performed. To stop the record display:

  PRESS any key (other than CTRL E)

The last record to be displayed will stay on your screen. If you'd like to restart the display again:

PRESS any key (other than CTRL E)

Not displaying the records speeds up File Maintenance.

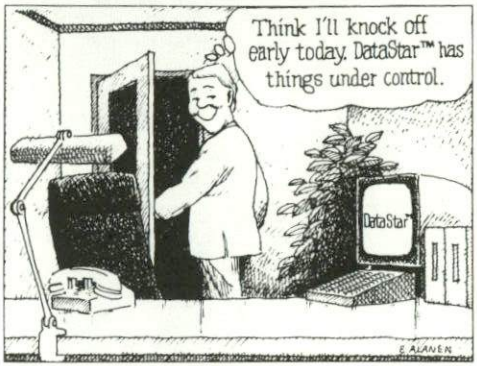
Step 5 Complete File Maintenance

When file maintenance is complete, this prompt will be displayed.

File Maintenance is complete. Hit ESC key:

PRESS [ESC]

PRESS [CTRL][E][E][C](to exit)



Appendix A
Attribute List

The following is a brief description of each attribute on the FormGen Attribute List (field definition phase). It is not a complete explanation of any attribute or of the ways different combinations of attributes work together. Turn to Appendix A in the DataStar User's Guide 1.1 for an extensive discussion of all attributes.

Not all of the attributes listed here will appear on your screen. Some selections are only listed on your screen after you have chosen another attribute. (For example, you will not be asked to designate a floating character unless you've previously selected that attribute.)

ATTRIBUTES

1. FIELD NAME is selected (typed in) when you want the data field to carry a name as well as a number. A field name is composed of 1 to 32 characters, and may include the numbers 0-9 or spaces. The first character in a name must be A-Z.

2. FIELD ORDER is a field identification number. A field order number is automatically assigned when the field is created (the first field to be typed = 001). Unless you assign a new field order number (by typing it in), this is the same order that data will be entered on the form in DataStar. Changing a field's order number automatically causes DataStar to reassign other field order numbers as well as any references to this field.

3. KEY ORDER is the order (hierarchy) of the Key fields on a form. (Some forms have more than one Key field). Selecting this attribute means rearranging the order of the Key fields.

   A. TIE BREAKER FIELD is a Key field for which DataStar supplies the information (no operator entry). Selection of this attri-

bute means DataStar will calculate and enter the lowest possible number to create a unique Key field.

B. REFUSE DUPLICATE KEYS is an attribute used to create files with unique keys (Key fields). When this attribute has been assigned, an operator cannot enter a record with the same Key field data as another record.

4. COPY ATTRIBUTES OF FIELD is assigned when you want one field to contain EXACTLY THE SAME attributes as another field (saves typing work). To assign this attribute you type in the number of the field which has the attributes to be duplicated.

5. FIELD DERIVED is assigned when you want DataStar to supply the information for the field (no operator entry). DataStar can derive data to be placed in a field by calculating (adding, subtracting, etc.) values found in other fields, or by looking up the information in a separate file.

   A. ALLOW OPERATOR ENTRY is assigned if you want an operator to be able to adjust information in a derived field (although DataStar has supplied the information).

   B. CALCULATED/FILE is assigned to designate "how" a field should be derived: file means DataStar will gather the information by accessing a separate file (see page A-7), and *calculated* means DataStar will derive the value from other fields (e.g., add fields together).

      *(1.) INDEX FIELD NUMBERS means type in the number of the field (on this form) that contains the necessary information to direct DataStar to a reference file.

*(1.) and (2.) are only used with the "File Derived" Attribute:

*(2.) ITEM NUMBER IN THE FILE means type in the number of the field that contains information you want DataStar to gather from an existing record, in a reference file.

(3.) VERIFY/CALCULATE ORDER is used to assign a special sequence for calculating the contents of a field. This ordering is only important when the calculation for one field depends on the results found in previous fields.

(4.) NUMERIC/STRING is assigned to tell DataStar "how" the data should be calculated for a field. A Numeric assignment (N) manipulates numbers, and a String assignment (S) manipulates character strings.

(a.) ENTER STRING EXPRESSION FOR FIELD tells DataStar what string expression to use when calculating data for this field. A "string expression" may combine fields or parts of fields (characters).

(b.) ENTER ALGEBRAIC EXPRESSION FOR FIELD CALCULATION tells DataStar how to calculate the numeric (N) information. An algebriac expression may contain fields (their names or field numbers) and number constants, combined with arithmetic operations.

(c.) INTERMEDIATE FIELD is assigned when you want to designate a *temporary field* which will hold partial results in complicated calculations or information from a reference file. This field then appears on your screen during the data entry process but *will not be stored in the files with your other data.*

C. REQUIRED is assigned when you do not want a field to be left blank.

6. RIGHT JUSTIFY determines on which side of the field data will be entered. A Y answer here means data entered will be aligned from the right.

7. PAD FIELD CHARACTERS can be used to extend fields to their full length.

   A. ENTER PAD CHARACTER is used to designate the character to use for padding (e.g., 0).

8. FLOATING CHARACTER is used to assign a character to float on the left or right of all entered data.

   A. ENTER FLOATING CHARACTER is used to designate the character you want to use for floating (e.g., $).

9. VERIFY FIELD is assigned when you want DataStar to require verification of the contents of a field before storing the information in the data file. There are three types of Verify Attributes you can assign.

   A. SIGHT/RETYPE/FILE are the three verification options. Assigning S means an operator will be asked to "sight" verify the information in this field. Assigning R means DataStar will clear the field, and an operator will be required to retype the information. The retyped information must be identical to what was

there before, or DataStar will repeat the process until the information matches. Assigning F means DataStar will check the field against a separate file.

Items (1.-4.) are associated with the File Verify Attribute:

(1.) KEEP FILE IN MEMORY DURING DATA ENTRY is assigned when a reference file is small enough to fit in memory. This is a great timesaving facility; use it when you can.

(2.) ENTER FILE NAME is used to enter the name of the reference file that DataStar should access.

(3.) ENTER FILE DISK DRIVE is used to designate the disk drive where the reference file can be found. When possible, use the logged disk.

(4.) ENTER FILE KEY FIELD NUMBER is used to designate which field DataStar should use to select a record within the accessed reference file. You must use the reference file Key field and it must be exactly the same length as the Key field in the record you're accessing.

(5.) BATCH VERIFY is assigned to designate the order in which verification and calculation should occur. Both the verify and calculate procedures occur at the end of the data entry, in the Verify Mode.

10. CHECK DIGIT is an attribute that can be assigned to a numeric field when you want all data entered there to be divisible by 11. DataStar will automatically check that the data is divisible by 11.

11. RANGE CHECK is assigned to assure that any data entered in this field falls within a certain range.

    A. ENTER/CHANGE THE MINIMUM FIELD VALUE assigns the smallest acceptable value that may be entered.

    B. ENTER/CHANGE THE MAXIMUM FIELD VALUE assigns the largest acceptable value that may be entered.

12. EDIT MASK is assigned to control *what kind* of data is entered into a field and *how* that data is entered on a character-by-character basis. (The mask filters out incorrect data.)

    A. ENTER/CHANGE THE ENTRY CONTROL MASK allows you to designate (for each character in the field) whether or not data should be entered in the field, and whether data is constant or automatic copy.

    B. ENTER/CHANGE THE CONTENT CONTROL MASK designates the kinds of characters that will be allowed in the field.

13. RECORD EDIT CHARACTERS allows you to save pad, float, or constant characters as part of the data.

End of attribute list (field definition phase of DataStar).

USING THE FILE DERIVED ATTRIBUTE:

(Note: File Derived was called List Derived in previous versions of DataStar)

When you assign the File Derived Attribute, you must have a reference file from which DataStar can derive data. There are two ways to set up a reference file:

1. Convert existing files to the DataStar file format.
2. Create new files using FormGen and DataStar (see page 2-14 and page 2-15 in the DataStar User's Guide 1.1).

Next you must designate those fields that will be File Derived and one field to act as an *index* into the reference file.

In the Order Form below, the BILL TO fields are File Derived, and the CUSTOMER # field is the index *into* the reference file (i.e., tells DataStar where to go to gather information for the BILL TO fields).

Any field that acts as an index must contain the File (List) Verify Attributes, and must be exactly the same length as the corresponding key field in the reference file.

Listed below the Order Form are all the attributes assigned to these interdependent fields: BILL TO and CUSTOMER #,

Order Form

Order #: 1 Date (M/Y/D): 2/3/4 Customer #: 5

Bill to: 6 Ship to: 11
Address: 7 Address: 12
City: 8 City: 13
State: 9 Zipcode: 10 State: 14 Zipcode: 15

P.O. #: 16 Ship via: 17 Terms: 18

Quantity	Product	Description	Unit Cost	Total Cost
19	20	21	22	23
24	25	26	27	28

Tax Rate: 29% Sales Tax: 30 Total: 31

Attribute Assignments
Field Derived? Y
Calculated/File? F
Index field number: 005
Item number in list: 001

Attribute Assignments
Required? Y
Right Justify? Y
Verify Field? Y
Sight/Retype/File? F
Enter file name: Customer
Enter file disk drive: —
Item number of field: 001
Verify/Calculate Order: 002
Edit Mask? Y
Content Control: 0-9 only

Appendix B
Error Messages

Section 1: The following is a list of error messages that may be displayed (near the top of your screen) at any time during the form-creation process. For your convenience, the messages are alphabetized according to the first word. (The symbol ^ means CTRL.)

At column limit. B ignored. Hit ESC key:

The maximum number of columns allowed is 255. Remove some blank or unnecessary columns from your form.

At line limit. N ignored. Hit ESC key:

The maximum number of lines allowed is 255. Remove some blank or unnecessary lines from your form.

Cannot delete last column. Hit ESC key:

A minimum of one column must exist at all times. This message will be displayed when CTRL T is entered to remove the only remaining column.

Cannot delete last line. Hit ESC key:

A minimum of one line must exist at all times. This message will be displayed when CTRL Y is entered to delete the only remaining line.

Can't read form definition file.
Replace system disk, type RETURN:

Indicates hardware problem, serious program bug, or that you've entered a file name that is not a form definition file.

Cursor is not in a field.^_ignored. Hit ESC key:

Either CTRL K, CTRL R or CTRL Z were entered when the cursor was not located in a field. Press ESC, move the cursor *INTO* the desired field, and enter the command again.

Directory full.
Replace system disk, type RETURN:

The maximum number of files already exists on the disk. Move some files off to another disk to make room. This action is rarely necessary since the number of files on a disk usually doesn't change during FormGen operation. A space problem may arise, however, when you are creating a new form or when you are increasing the size of a form beyond 16K.

Disk full.
Replace system disk, type RETURN:

Move some files off to another disk to make room. Before you begin to create a new form, always check how much space is available on your disk. If you attempt to save a new form and get this message, you may lose many hours of work because the only way to recover from this condition is to reboot the system. Use the Form Save and Continue command (^CC) frequently as you work to avoid losing an entire form.

Insufficient memory.
Replace system disk, type RETURN:

There is not enough memory present in the system to read the form definition file into memory. This condition should only occur if memory has been removed from your system since the form was created, or if you are using a version of FormGen that is different from the one used to create the form. This condition could also occur if you changed versions of your operating system. Restore the system to its original configuration, and use FormGen to delete portions of your form, thereby reducing the memory requirements.

Not enough memory, ^_ignored. Hit ESC key:

This message will occur if CTRL B, CTRL N, CTRL Q or CTRL R is entered when there isn't enough memory left to execute the specified operation.

Possible fatal program error.
Please report occurrence, ^_ignored. Hit ESC key:

This message should never appear. If it is displayed, and if you can re-create the occurrence, please contact your dealer or MicroPro International. If the error is specific to your form, please include a copy of the form.

The maximum number of fields is 245, ^_ignored. Hit ESC key:

This message will be displayed if CTRL Q is entered to create another field after field #245, or if an attempt is made to split an existing field after the maximum number of fields has been created.

^_ **Unimplemented control character. Hit ESC key:**

The wrong control character was entered. Press ESC and enter another character.

***WARNING: Edit mask or range limits may need revision. Hit ESC key:**

If you attempt to change the size of any data field that contains an Edit Mask or Range Check Attribute, this message will be displayed. Recheck your attribute assignment for this field.

Section 2: The following is a list of error messages that may be displayed during the *attribute assignment* (field definition) process:

A . This message can appear anywhere in the attribute assignment (field definition) process:

Illegal character. Hit ESC key:

Most of the responses to the field definition (Attribute) queries are limited to certain characters; not all characters are accepted in the query responses. In many cases, the range of valid responses is given in parentheses after the query; otherwise, the set of legal characters is given in Appendix A of the DataStar User's Guide 1.1.

B. The following error messages can appear during Field Calculated Attribute Assignment process:

Illegal operand. Item must be a field between #001 and # ____, or a constant using only the digits 0 through 9, and optional decimal point and leading minus sign, or a valid field name. Hit ESC key:

An illegal numeric operand has been assigned. This message may appear because:

1. The field number is greater than the number of fields, or is 0.
2. An illegal constant is used.
3. There is a missing operand (two operands in a row, or two "joins," &&, in a row, or the first character of an expression is the join character).

Illegal operand. Item must be a field between #001 and # ____, or a literal enclosed in quotes, or a valid field name. Hit ESC key:

This message appears when an incorrect field number is entered for a string calculation. The cursor will be positioned at the incorrect operand. This error may occur when:

1. The field number is greater than the number of fields or is 0.
2. There are invalid subfield representations.
3. The character string is not enclosed in quotes.
4. The operand is missing — you either have two "joins" (&&) in a row, or the first character of an expression is the join operator.

Illegal operator. Item must be &. Hit ESC key:

The only legal operator for string expressions is &. Delete the incorrect operator and enter &. This condition occurs whenever the first character following a legal string operand is not &.

Illegal operator. Item must be +−*/^. Hit ESC key:

The only legal numeric operations are add (+), subtract (−), multiply (*), divide (/), and expo-

nentiate (^). This condition will occur whenever the first character following a legal numeric operand is not one of the allowed symbols.

Unclosed left parenthesis. Hit ESC key:

The right parenthesis is missing and must be inserted or the left parenthesis removed. This condition should be easy to spot and correct by rechecking the parentheses. If there are more right parentheses than left, the illegal operator message will be displayed.

Section 3: The following error messages may be displayed after CTRL C is entered to store a form. Although FormGen will store the form, DataStar will *not* run it until the errors have been corrected. The list has been alphabetized according to the first word in **each** Error Message.

000 Field must be defined as "file verify" since field #xxx references it.

This condition will occur when a data field is defined as file derived, and the associated index field has NOT been assigned the File Verify Attribute. See section 2.06 in the DataStar User's Guide 1.1 for more information about the requirements of file derived data fields.

000 Illegal character(s) in the content control word.

The content control word is assigned under the Edit Mask Attribute during the edit mask queries (see Appendix A, DataStar User's Guide 1.1). This condition can arise in the following sequence of events: a constant was specified in response to the entry control query; an otherwise illegal character was specified to be used as a constant in the content control query step; the constant was removed from the edit control mask, but the constant character was not removed. To correct this condition, position the cursor in the field, type CTRL R, and proceed through the attribute list to the Edit Mask. Then remove the constant or replace the quotation marks.

000 Incomplete expression for calculated field.

This message will be displayed if you assigned a Field Calculate Attribute but did not enter the calculation expression, or if a data field referenced by the expression was subsequently deleted. To correct, either enter the missing expression or replace any "???" in the expression with a valid field reference.

000 Invalid range check limits.

If the maximum value allowed is smaller than the minimum allowed value, this message will be displayed. To correct, position the cursor in the field, press CTRL R, and proceed to the range check query. Reenter the minimum or maximum allowed values.

??? Key length is greater than 120 characters.

The maximum key length is 120 characters. This condition will occur when too many fields in the form have been designated as Key fields or the designated Key fields are too long. To correct, either use CTRL K to remove some Key fields, or reduce the lengths of one or more Key fields.

000 No file name specified for verify file.

This message will appear when a data field has been assigned the File Verify Attribute, but the file containing the list of legal values was not named in the definition process. As a consequence, DataStar will not be able to verify the values entered into the field. To correct, position the cursor in the field, press CTRL R, and proceed through the attribute list to "Enter list file name" under the Verify Attribute. ENTER the correct file name.

??? No key field has been established.

This message will appear if the form has no Key field. To correct, position the cursor in the chosen field and press CTRL K.

000 Unspecified index for a file derived field.

Every file derived data field must also have an associated index field on the same form. The purpose of the index field is to name the file that DataStar should access to derive the information for the file derived data field. If there is no index field, DataStar will not know where to find the information. See section 2.06 of the DataStar User's Guide 1.1 for more information.

000 Unspecified Verify/Calculate Order.

This condition may occur for one of two reasons:

A Y answer was given for the "Verify?" query, but the designer did not go far enough through the query sequence to specify a verify/calculate order; or there are more than 255 verifications or calculations to be performed.

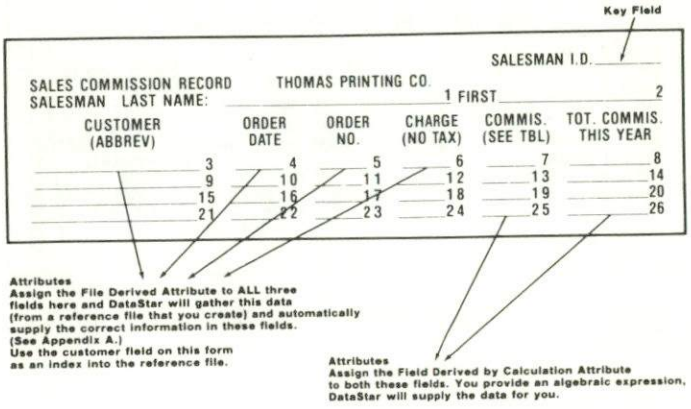
If no order was specified, press CTRL R to begin the attribute list, press RETURN until the verify/calculate order query is reached, then enter a proper response. If there are more than 255 verifications or calculations to be performed, reduce the total number to less than 255.

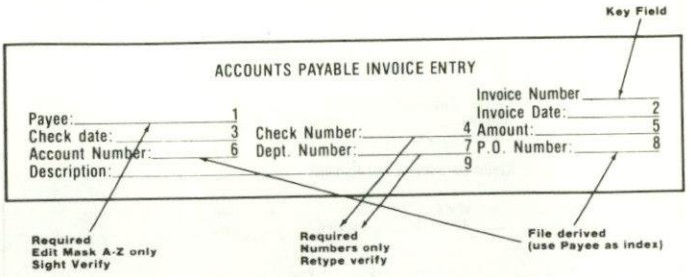
Appendix C
Sample Forms

The forms on the following pages are provided as design aids. Each form shows a different kind of application as well as some of the problem solving features of DataStar.

Below each form we have listed suggested attribute (data field characteristics) assignments for several data fields. These attribute suggestions are provided to show you how DataStar can do much of the data entry work for you.

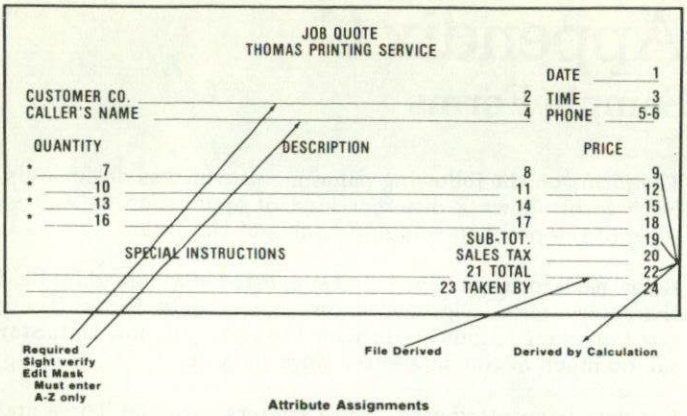
For details on attributes, read Chapters Two and Three and Appendix A in this Guide.


Key Field
SALESMAN I.D.
SALES COMMISSION RECORD
THOMAS PRINTING CO.
SALESMAN LAST NAME:
1 FIRST
2
CUSTOMER (ABBREV)
ORDER DATE
ORDER NO.
CHARGE (NO TAX)
COMMIS. (SEE TBL)
TOT. COMMIS. THIS YEAR
3 4 5 6 7 8
9 10 11 12 13 14
15 16 17 18 19 20
21 22 23 24 25 26
Attributes
Assign the File Derived Attribute to ALL three fields here and DataStar will gather this data (from a reference file that you create) and automatically supply the correct information in these fields. (See Appendix A.)
Use the customer field on this form as an index into the reference file.
Attributes
Assign the Field Derived by Calculation Attribute to both these fields. You provide an algebraic expression, DataStar will supply the data for you.

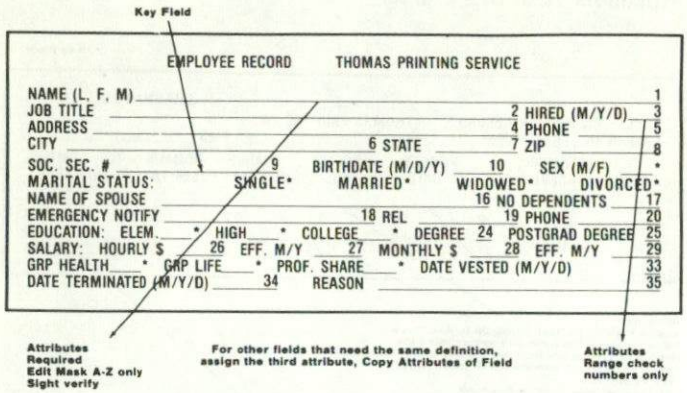


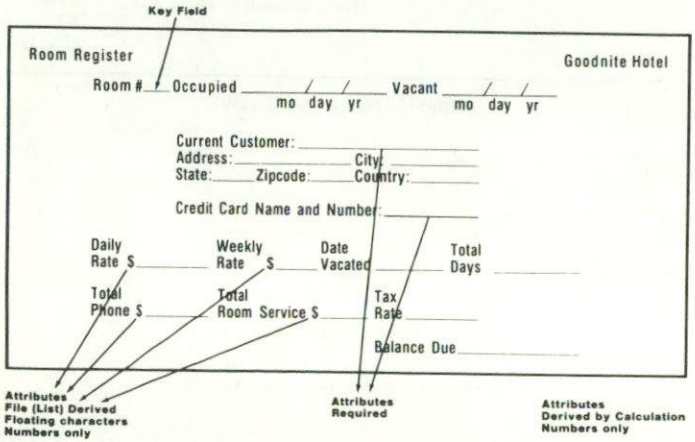
Attribute Assignments

High volume data entry tasks such as invoice filing can be handled with DataStar's Batch File feature.



Attribute Assignments


Key Field
EMPLOYEE RECORD THOMAS PRINTING SERVICE
NAME (L, F, M) 1
JOB TITLE 2 HIRED (M/Y/D) 3
ADDRESS 4 PHONE 5
CITY 6 STATE 7 ZIP 8
SOC. SEC. # 9 BIRTHDATE (M/D/Y) 10 SEX (M/F) *
MARITAL STATUS: SINGLE* MARRIED* WIDOWED* DIVORCED*
NAME OF SPOUSE 16 NO DEPENDENTS 17
EMERGENCY NOTIFY 18 REL 19 PHONE 20
EDUCATION: ELEM.* HIGH* COLLEGE* DEGREE 24 POSTGRAD DEGREE 25
SALARY: HOURLY $ 26 EFF. M/Y 27 MONTHLY $ 28 EFF. M/Y 29
GRP HEALTH* GRP LIFE* PROF. SHARE* DATE VESTED (M/Y/D) 33
DATE TERMINATED (M/Y/D) 34 REASON 35
Attributes
Required
Edit Mask A-Z only
Sight verify
For other fields that need the same definition, assign the third attribute, Copy Attributes of Field
Attributes
Range check
numbers only



Sample DataStar Applications

* legal document system
* inventory lists
* rare book collections
* personal datebook
* professional appointment schedules
* film library catalogue
* expense reports
* course and seminar registration
* advertising agency traffic management
* delivery schedules
* ticket and seating services
* job scheduling
* receivable system
* membership lists
* hotel/motel reservations
* exhibitor lists
* real estate listings
* shipping schedules
* business contacts
* special events schedules
* construction job costing
* campaign contributions
* headhunter executive lists
* billboard scheduling
* car lot inventories

NOTES

Appendix D
Quick Guides to DataStar

This section contains several pages of quick guides and a DataStar User's Map. While the quick guides do not cover the entire DataStar system, they can be used as reminders of the most used procedures.

For your convenience, the guides are printed on card stock, with reference charts on both sides. The horizontal format provides a means to set the guides alongside your terminal, using your binder as a kind of easel.

USING FORMGEN TO DESIGN A FORM (General Procedures)

DataStar Quick Guide **CARD 1**

HOW TO		SCREEN DISPLAY	TYPE OR PRESS	COMMENTS
BEGIN FORMGEN PROGRAM (Form design procedures)	1	**A>** (Or Operating System prompt for drive containing Formgen)	F O R M G E N RETURN **(Or see Comments A or B)**	A. To bypasss Step 2, enter the following at Step 1: **FORMGEN SPACE** formname **RETURN** B. To create form in B Drive, enter the following at Step 1: **FORMGEN SPACE B:** formname **RETURN**
	2	PROMPT: Enter name of form . . .	**formname** RETURN	A formname may be 1 to 8 characters in length.
	3	HELP SCREEN 4 (Explains how to create a form)	CTRL J **(Rotates display to any Formgen HELP SCREEN)**	Reminder: Hold down **CTRL** key while typing **J**. (Holding down **CTRL** key gives letter keys special functions.)
DESIGN A FORM		HELP SCREEN 3, 2, or 1 (∧ symbol on Help Screens means hold down **CTRL** key)	**(Design your form)**	A form consists of background text (such as Data Field labels) and Data Fields. Use the **underline** key or **CTRL Q** to create the Data Fields. Example: **LAST NAME:** _____
ASSIGN KEY FIELD (At least one Key Field is required)		HELP SCREEN 3, 2, or 1, & Form	CTRL K	Cursor must be located in Data Field selected as a Key Field. (You will be able to access your records later by Key Field.)
OPTIONAL **ASSIGN ATTRIBUTES** (If desired, to give special characteristics to one or more Data Fields)	1	HELP SCREEN 3, 2, or 1, & Form	CTRL R	Cursor must be in Data Field selected for attribute assignments. ("Define field" and "field definition" also refer to this procedure.)
	2	HELP SCREEN R; A few lines of form; PROMPT: Field name:	**(Assign a Field Name, or press RETURN to display next attribute option on list)**	A. Follow same general procedure throughout list of attribute options: To assign, enter appropriate response; to pass, press **RETURN.** B. End attribute assignments procedure any time by entering **CTRL C.**

USING FORMGEN TO DESIGN A FORM (General Procedures)

DataStar Quick Guide **CARD 2**

HOW TO		SCREEN DISPLAY	TYPE OR PRESS	COMMENTS
OPTIONAL **PRINT FORM & ATTRIBUTE DETAILS**		HELP SCREEN 3, 2, or 1, & Form	CTRL W	A. Printouts will include form with Data Fields numbered and 1 to 4 more parts, depending on which attributes were assigned. B. To stop full printing cycle at any point, press **SPACEBAR** 5 times (or 1 time per part to be bypassed).
SAVE FORM & CONTINUE		HELP SCREEN 3, 2, or 1. & Form	CTRL C C	Saves work done so far.
SAVE FORM & CHAIN TO DATASTAR		HELP SCREEN 3, 2, or 1. & Form	CTRL C D	You may begin entering data to produce a record in ADD MODE after chaining (proceeding) to Datastar (see CARD 3 "BEGIN" procedures).
EXIT TO OPERATING SYSTEM & SAVE FORM		HELP SCREEN 3, 2, or 1. & Form	CTRL C B	Use this procedure when you plan to be away from your terminal for a while, or when you have completed a form.
ABORT FORM	1	HELP SCREEN 3, 2, or 1. & Form	CTRL C A	To avoid loss of work you have not saved, this procedure required confirmation. (Step 2.) (If you are sure you want to abandon current work, enter **CTRL C A Y** to bypass confirmation prompt.)
	2	PROMPT: Abandon form edit? (Y/N)	**(See Comments)**	Enter **Y** (Yes) to abandon your work, or **N** (No) if you change your mind.

USING DATASTAR TO PRODUCE A RECORD (General Procedures)

HOW TO	SCREEN DISPLAY	TYPE OR PRESS	COMMENTS
BEGIN DATASTAR PROGRAM (Data entry procedures)	A> (Or Operating System prompt for drive containing Datastar Program)	D A T A S T A R SPACEBAR **formname** RETURN	You may also proceed (or "chain") to Datastar from the Formgen program (see CARD 2). [Note: The ADD MODE Help Screen and the MODE SELECTOR LIST are reproduced on the back of CARD 4.]
2A IF RECORDS OR DATA FILES DO NOT EXIST FOR THIS FORM	2 PROMPTS: Enter disk drive for data file. . . Enter disk drive for index file. . .	**(A, B, or letter for drive you select)**	This step is required only before the first record (or data file) is produced for a given form. Step 2B will then be bypassed.
2B IF RECORDS OR DATA FILES DO EXIST FOR THIS FORM	MODE SELECTOR LIST: Empty form	SPACEBAR	The data on a form becomes a record after you fill in the blank Data Fields and save the record on a disk.
BEGIN DATA ENTRY	ADD MODE Help Screen & Form (∧ symbol on Help Screens means hold down **CTRL** key)	**(Enter data. Note: Cursor may skip over some Data Fields. See Comments.)**	Depending on how the form designer defined each Data Field with attributes, certain entries may appear on screen automatically; etc. (Form designer should provide you with special instructions, if needed.)
END DATA ENTRY	ADD MODE Help Screen; Filled-in form	CTRL B	If Datastar finds certain errors in your entries (depending on attributes assigned), it will display an error message. Respond to screen prompt, correct errors, then save the record (next step).
SAVE THE RECORD	PROMPT: Hit RETURN to file entered data. . .	RETURN	An empty form will be displayed. Begin data entry to produce another record, or exit (see CARD 4).

USING DATASTAR TO RETRIEVE, MODIFY, SCAN, OR PRINT YOUR RECORDS (General Procedures)

HOW TO		SCREEN DISPLAY	TYPE OR PRESS	COMMENTS
Retrieve Or Modify One Record	1	ADD MODE Help Screen; Empty form	CTRL E K	This is the fast way to go from ADD MODE to LOCATE KEY MODE. (**REMINDER:** You may also change Modes at the MODE SELECTOR LIST. To display the MODE SELECTOR LIST, enter **CTRL E** while in any Mode, then select the Mode you want.)
	2	LOCATE KEY MODE Help Screen; PROMPT: PLEASE ENTER KEY; Empty form [Note: Cursor will be located **in** a Key Field automatically]	**(Enter Key Field data)**	EXAMPLE: To retrieve a record Keyed (indexed) by "Last Name," type appropriate name, such as "Baugh": Complete record for Mr. Baugh will be displayed. You may modify record, print it, etc.
Print One Record		LOCATE KEY MODE Help Screen; Retrieved record	CTRL U	To print data only (no background text), enter **CTRL O** instead of **CTRL U.**
Scan Or Modify All Records In File		Add MODE Help Screen; Empty form	CTRL E D	Screen will display SCAN MODE (D) Help Screen so you can scan or modify records in Data file order. (Or, enter **CTRL E I** for Index mode so you can scan or modify in Index file order.)
Print All Records In File	1	SCAN MODE (D) or (I) Help Screen; Any record in file	CTRL U	To print data only (no background text), enter **CTRL O** instead of **CTRL U.**
(NOTE: Stop printing in progress by pressing any letter key.)	2	PROMPT: End of file Hit ESC key to continue scan:	ESC	Printing resumes from beginning of file: To stop printing cycle, press any letter key.
Exit (To Operating System)		Any Mode; Any record	CTRL E E C	This is the fast way to exit from Datastar. You may also exit through MODE SELECTOR LIST.

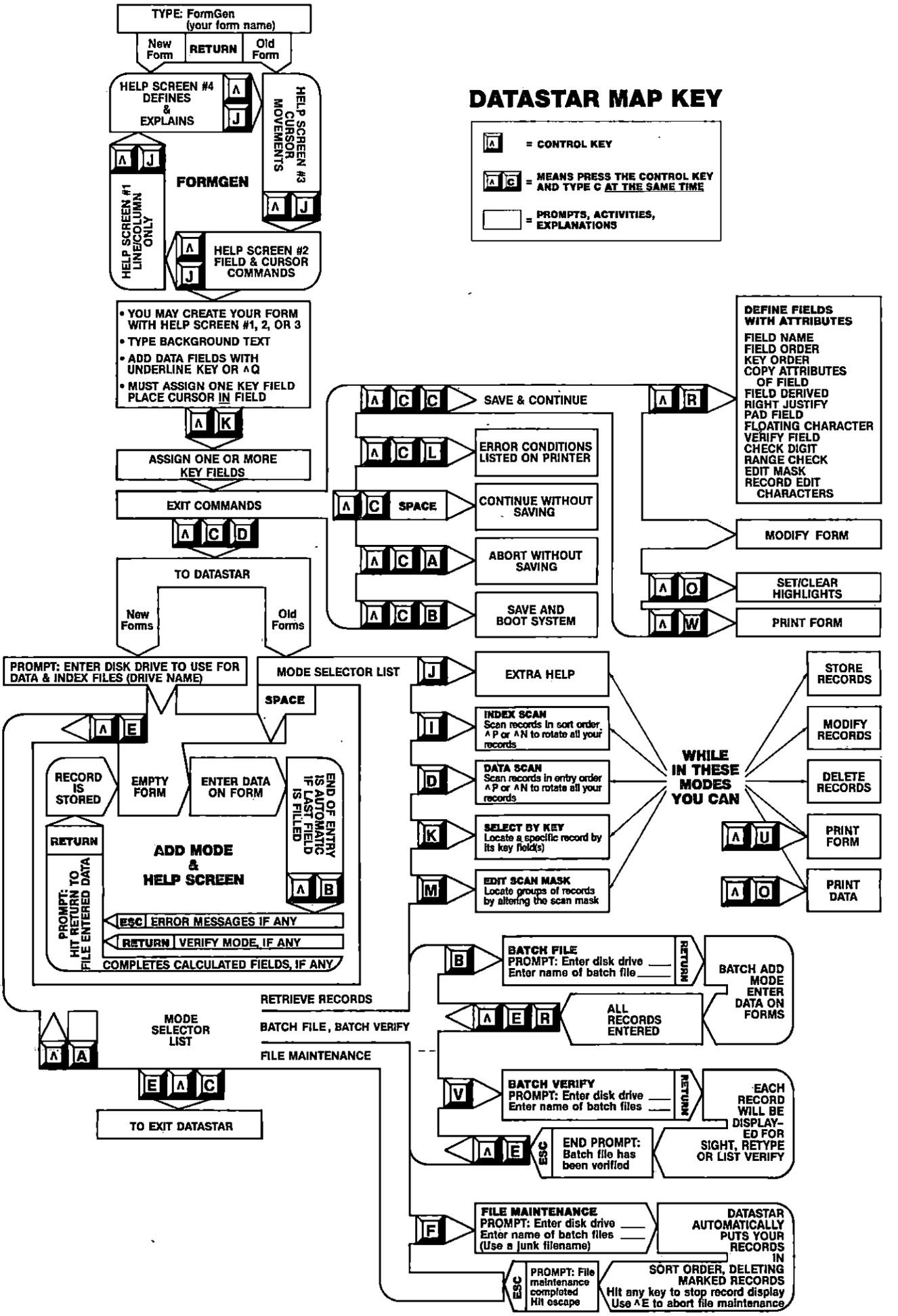
Add Mode Help Screen

```
ADD MODE                              current form =ORDER
CURSOR:      ^ A =prev field          ^ S =left char      ^ D =right char   ^ F =next field
             ^ T =first field         ^ L =last field
FIELD EDIT:  ^ G =delete char         ^ V =insert hole    ^ C =copy from previous record
OTHER:       ^ Z =restore screen      ^ U =print form     ^ O =print data   ^ J =help on/off
END/EXIT:    ^ B =end entry           ^ E =exit current mode
```

Mode Selector List

```
ADD MODE                                        current form =form name
 Enter character to select new mode:

A =Add new records          K =select records by KEY     E =Exit current form
I =SCAN in Index order      D =SCAN in Data file order   M =edit scan Mask
B =select Batch file        V =Verify batch file
F =File maintenance         J =Help                      SPACE =current mode
```

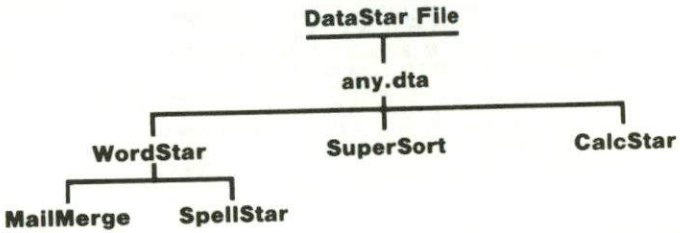

TYPE: FormGen (your form name)
New Form
RETURN
Old Form
HELP SCREEN #4 DEFINES & EXPLAINS
^J
HELP SCREEN #3 CURSOR MOVEMENTS
FORMGEN
HELP SCREEN #1 LINE/COLUMN ONLY
HELP SCREEN #2 FIELD & CURSOR COMMANDS
• YOU MAY CREATE YOUR FORM WITH HELP SCREEN #1, 2, OR 3
• TYPE BACKGROUND TEXT
• ADD DATA FIELDS WITH UNDERLINE KEY OR ^Q
• MUST ASSIGN ONE KEY FIELD PLACE CURSOR IN FIELD
^K
ASSIGN ONE OR MORE KEY FIELDS
EXIT COMMANDS
^CD
TO DATASTAR
New Forms
Old Forms
PROMPT: ENTER DISK DRIVE TO USE FOR DATA & INDEX FILES (DRIVE NAME)
^E
MODE SELECTOR LIST
SPACE
RECORD IS STORED
EMPTY FORM
ENTER DATA ON FORM
END OF ENTRY IS AUTOMATIC IF LAST FIELD IS FILLED
^B
RETURN
PROMPT: HIT RETURN TO FILE ENTERED DATA
ADD MODE & HELP SCREEN
ESC ERROR MESSAGES IF ANY
RETURN VERIFY MODE, IF ANY
COMPLETES CALCULATED FIELDS, IF ANY
^A
MODE SELECTOR LIST
^C
TO EXIT DATASTAR
RETRIEVE RECORDS
BATCH FILE, BATCH VERIFY
FILE MAINTENANCE
DATASTAR MAP KEY
^ = CONTROL KEY
^C = MEANS PRESS THE CONTROL KEY AND TYPE C AT THE SAME TIME
= PROMPTS, ACTIVITIES, EXPLANATIONS
^CC SAVE & CONTINUE
^CL ERROR CONDITIONS LISTED ON PRINTER
^C SPACE CONTINUE WITHOUT SAVING
^CA ABORT WITHOUT SAVING
^CB SAVE AND BOOT SYSTEM
^R
DEFINE FIELDS WITH ATTRIBUTES
FIELD NAME
FIELD ORDER
KEY ORDER
COPY ATTRIBUTES OF FIELD
FIELD DERIVED
RIGHT JUSTIFY
PAD FIELD
FLOATING CHARACTER
VERIFY FIELD
CHECK DIGIT
RANGE CHECK
EDIT MASK
RECORD EDIT CHARACTERS
MODIFY FORM
^O
SET/CLEAR HIGHLIGHTS
^W
PRINT FORM
J EXTRA HELP
I INDEX SCAN Scan records in sort order ^P or ^N to rotate all your records
D DATA SCAN Scan records in entry order ^P or ^N to rotate all your records
K SELECT BY KEY Locate a specific record by its key field(s)
M EDIT SCAN MASK Locate groups of records by altering the scan mask
WHILE IN THESE MODES YOU CAN
STORE RECORDS
MODIFY RECORDS
DELETE RECORDS
^U PRINT FORM
^O PRINT DATA
B BATCH FILE PROMPT: Enter disk drive ___ Enter name of batch file ___ RETURN
^ER ALL RECORDS ENTERED
BATCH ADD MODE ENTER DATA ON FORMS
V BATCH VERIFY PROMPT: Enter disk drive ___ Enter name of batch files ___ RETURN
^E ESC END PROMPT: Batch file has been verified
EACH RECORD WILL BE DISPLAY-ED FOR SIGHT, RETYPE OR LIST VERIFY
F FILE MAINTENANCE PROMPT: Enter disk drive ___ Enter name of batch files ___ (Use a junk filename)
DATASTAR AUTOMATICALLY PUTS YOUR RECORDS IN SORT ORDER, DELETING MARKED RECORDS
ESC PROMPT: File maintenance completed Hit escape
Hit any key to stop record display
Use ^E to abort file maintenance

Appendix E
The MicroPro Family of Products

In working through this training guide, you've gained experience with **DATASTAR'S** flexible entry and retrieval capabilities. As you can see, **DATASTAR** alone is a powerful business tool. Used in conjunction with other products offered by **MicroPro, DATASTAR** becomes even more powerful.

MicroPro has designed all of its programs so that they can combine forces and accomplish a wide variety of practical tasks. The files you create with **DATASTAR** are compatible with **WORDSTAR, MAILMERGE, SUPERSORT,** and **SPELLSTAR.** Therefore, you can enter data once, in **DATASTAR,** and then use your files for many different applications, a few of which are outlined below. Furthermore, when you do extensive calculations with **CALCSTAR, DATASTAR** will enable you to access the data and use it for other purposes.

The illustration below shows how **DATASTAR** files relate to other **MicroPro** programs.



Let's look at some examples of how **DATASTAR** can be used with other **MicroPro** products.

Perhaps you are using an Invoice Form like the one below. (This is similar to the form you worked with in Chapter 2 of this Guide.)

Invoice Form .

__/__/__
Date

Customer Number

Title | First and Middle | Last Name

Address | City | State | Zip

(__) ___-____
Area Phone

Previous Balance

Amount Charged

Balance Due

After entering records using the above form in DATASTAR, you have created a data file (.dta) like the following:

Invoice.dta

```
02/24/82,7,Ms.,Lydia Esther,Womack,8993 Cherry Ave,San Leandro,CA,
    94532,415,899-3400,12.89,1.98,14.87
02/16/82,5,Ms.,Annette L.,Robinson,1322 Blue Ridge Dr.,San Diego,CA,
    98443,714,399-5899,12.34,5.99,18.33
02/25/82,8,Mr.,Gerald R.,Franklin,87 Willow Ave,Gunnison,CO,
    85399,303,390-4879,33.67,33.67,67.34
02/03/82,1,Mr.,Jeffery M.,Jefferies,622 Virginia Hills,Denver,CO,
    67788,303,372-9999,23.45,55.44,78.89
02/17/82,6,Mr.,Roland M.,Robinson,1745 Navajoe Rd.,San Francisco,CA,
    94720,415,372-6590,234.77,89.45,324.22
02/13/82,4,Mr.,James Peter,Livingston,3354 Main Street,San Rafael,CA,
    95663,415,893-5599,454.33,15.00,469.33
02/15/82,3,Ms.,Ester,Williams,724 West Broadway,Pueblo,CO,
    68833,303,228-6648,458.99,230.00,688.99
02/06/82,2,Dr.,Carl C.,Chester,1808 Oak Hill Dr.,Alhambra,CA,
    94553,213,372-8899,287.99,645.78,933.77
```

You can access this same data for a wide variety of uses by linking it with other **MicroPro** software programs. Here are some examples:

SUPERSORT can sort your invoice .dta file by date, helping you to keep track of which customers are up to date or delinquent in their payments.

Sorted by Date

```
02/03/82,1,Mr.,Jeffery M.,Jefferies,622 Virginia Hills,Denver,CO,
    67788,303,372-9999,23.45,55.44,78.89
02/06/82,2,Dr.,Carl C.,Chester,1808 Oak Hill Dr.,Alhambra,CA,
    94553,213,372-8899,287.99,645.78,933.77
02/13/82,4,Mr.,James Peter,Livingston,3354 Main Street,San Rafael,CA,
    95663,415,893-5599,454.33,15.00,469.33
02/15/82,3,Ms.,Ester,Williams,724 West Broadway,Pueblo,CO,
    68833,303,228-6648,458.99,230.00,688.99
02/16/82,5,Ms.,Annette L.,Robinson,1322 Blue Ridge Dr.,San Diego,CA,
    98443,714,399-5899,12.34,5.99,18.33
02/17/82,6,Mr.,Roland M.,Robinson,1745 Navajoe Rd.,San Francisco,CA,
    94720,415,372-6590,234.77,89.45,324.22
02/24/82,7,Ms.,Lydia Esther,Womack,8993 Cherry Ave,San Leandro,CA,
    94532,415,899-3400,12.89,1.98,14.87
02/25/82,8,Mr.,Gerald R.,Franklin,87 Willow Ave.,Gunnison,CO,
    85399,303,390-4879,33.67,33.67,67.34
```

This is just one of the many possible ways in which **SUPERSORT** can re-sort your data file to help you get the information you want. **SUPERSORT** can re-sort by *any* field and arrange numeric data in ascending or descending order.

You can use your data file with **WORDSTAR** and **MAILMERGE** to create a mailing for your customers.

First, write and edit a letter with **WORDSTAR**, then use **MAILMERGE** to select the names and addresses from the **DATASTAR** files. **MAILMERGE** will place this information in the appropriate places on both the letter and the envelope.

Sample Letter

March 5, 1982

Ms. Ester Williams
724 West Broadway
Pueblo, CO 68833

Dear Ms. Williams:

According to our records, you made a purchase on February 15, 1982 of $230.00. This amount plus your existing balance of $458.99 brings your current balance to $688.99.

The terms of your account provide for a $500.00 maximum credit. Please send payment today to bring your account within these limits.

Sincerely,

Lawrence Baker
Vice President, Marketing

LB/ls

Sorted by Zip Code

```
02/03/82,1,Mr.,Jeffery M.,Jefferies,622 Virginia Hills,Denver,CO,
    67788,303,372-9999,23.45,55.44,78.89
02/15/82,3,Ms.,Esther,Williams,724 West Broadway,Pueblo,CO,
    68833,303,228-6648,458.99,230.00,688.99
02/25/82,8,Mr.,Gerald R.,Franklin,87 Willow Ave.,Gunnison,CO,
    85399,303,390-4879,33.67,33.67,67.34
02/24/82,7,Ms.,Lydia Esther,Womack,8993 Cherry Ave,San Leandro,CA,
    94532,415,899-3400,12.89,1.98,14.87
02/06/82,2,Dr.,Carl C.,Chester,1808 Oak Hill Dr.,Alhambra,CA,
    94553,213,372-8899,287.99,645.78,933.77
02/17/82,6,Mr.,Roland M.,Robinson,1745 Navajoe Rd.,San Francisco,CA,
    94720,415,372-6590,234.77,89.45,324.22
02/13/82,4,Mr.,James Peter,Livingston,3354 Main Street,San Rafael,CA,
    95663,415,893-5599,454.33,15.00,469.33
02/16/82,5,Ms.,Annette L.,Robinson,1322 Blue Ridge Dr.,San Diego,CA,
    98442,714,399-5899,12.34,5.99,18.33
```

After you've sent your mailing, **WORDSTAR** and **SUPERSORT** can help you with your monthly reports. To create a table like the one shown below, you can use **SUPERSORT** to select and order the data. Then, the program, following simple instructions, will align the information into columns. Next, you can use **WORDSTAR** to supply the table headings and add lines between rows and columns to clarify your report.

Sample Table

SUMMARY OF FEBRUARY ORDERS

Date	Customer	Previous Balance	Amount Charged	Total Due
02/03/82	Mr. Jefferies	$ 23.45	$ 55.44	$ 78.89
02/06/82	Dr. Chester	287.99	645.78	933.77
02/13/82	Mr. Livingston	454.33	15.00	469.33
02/15/82	Ms. Williams	458.99	230.00	688.99
02/16/82	Ms. Robinson	12.34	5.99	18.33
02/17/82	Mr. Robinson	234.77	89.45	324.22
02/24/82	Ms. Womack	12.89	1.98	14.87
02/25/82	Mr. Franklin	33.67	33.67	67.34

CALCSTAR can help you, too. If you use **CALCSTAR** to create an inventory file, you can access that file using **DATASTAR.**

Should you need to make a recalculation across records, for example a change in the rate of mark up, **CALCSTAR** will do this task. The quickly prepared update is then available for use by **DATASTAR.**

DATASTAR is a powerful tool alone. And, as you can see, you'll save time and effort when you use the program in combination with the other products in the **MicroPro** family.

You can also use **SPELLSTAR**, the **WORDSTAR** spelling checker, to scan the letter and find misspellings. By adding your customer list to the **SPELLSTAR** dictionary, you can even check the spelling of each customer's name.

Corrected Letter

March 5, 1982

Ms. Esther Williams
724 West Broadway
Pueblo, CO 68833

Dear Ms. Williams:

Next, **SUPERSORT** can help you with your bulk mailing. Using the **DATASTAR** files, you can sort them once again, this time by Zip Code. Printing done, your mailing will be ready to take to the Post Office.

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